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Takes the "Grief" out of "Grief Stems"

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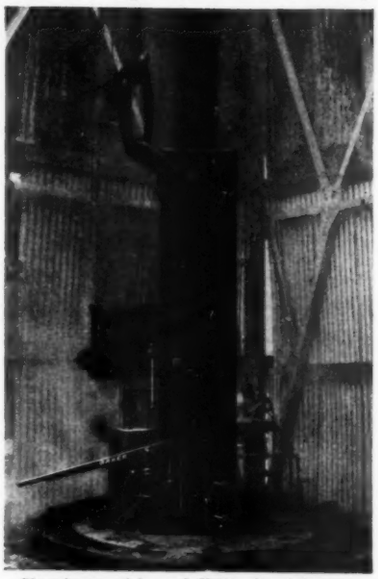

Showing position of Kelly Straightener on rotary table.

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The hydraulic ram principle, which is used in the Baker Kelly Straightener, while extremely simple in operation, is positive and efficient. Hydraulic pressure which can, if necessary, be built up by a hand operated pump to as high as 78 tons pressure, is applied to the bend in the Kelly or drill pipe *while it is suspended in the derrick.*

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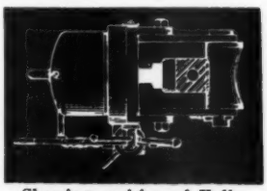

Showing position of Kelly in Straightener during operation.

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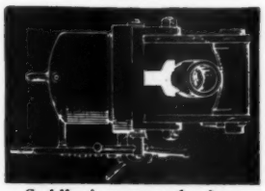
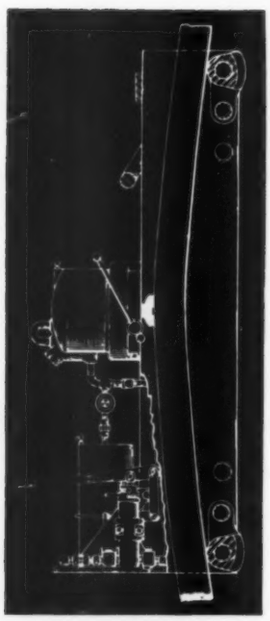


Saddle is reversed when straightening drill pipe.



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BAKER PORTABLE KELLY AND PIPE STRAIGHTENER

Forecasts Upset By Drop In Oil Stocks

CRUDE stocks, which for a few weeks last December recorded pronounced increases, affording ground for belief that a rising trend had started, upset forecasts by dropping sharply in the week ending January 9, the latest for which Bureau of Mines figures are available. In the three weeks ending December 26 the world's inventories of crude rose 660,000 barrels. In the two weeks ending January 9, however, these inventories sank from 288,517,000 to 286,912,000 barrels, a shrinkage of 1,605,000 barrels. The fact that two weeks' operations in January saw crude stocks drop more than twice as much as they had risen in three weeks of December seems to remove for the present any basis for fear of uneconomic additions to crude above ground. East Texas stocks increased 665,000 barrels in the week ending January 9, but those in other areas fell off so heavily as to obscure the rise in that field. Gulf Coast stocks, where exports have been making inroads on storage, fell 567,000 barrels, and those in the territory designated by the Bureau of Mines as "other Mid-Continent" fell 836,000 barrels.

This diminution of crude stocks is of particular interest in the light of the fact that daily average production in the United States hit a new high in the week ending January 23, totaling 3,197,487 barrels, a gain of 31,927 barrels over that of the preceding week. All the principal oil-producing states except California went to higher levels. Texas led, with an increase of 6,000 barrels. Oklahoma was next with 5,625. Louisiana was third with 3,745. The increase in Kansas was inconsequential.

Production 3,197,487
Increase 31,927

Eyes of operators now are focused on the meetings of regulatory bodies in Texas, Oklahoma and Kansas at which the allowable production in these states for February will be determined. At the meeting last week at which the Texas Railroad Commission received from Texas producers their requests for February allowables, C. F. Roeser, president of the Independent Petroleum Association of America, urged the commission to keep the state's output within the estimated requirements fixed by the Bureau of Mines. The bureau's recommendation for Texas February production is 1,203,400 barrels daily, an increase of 27,400 barrels over the bureau's recommended allowable for January, but 81,501 barrels under the current allowable set by the railroad commission. Disregarding Mr. Roeser's appeal, producers present asked for allowables aggregating 1,506,151 barrels, 67,355 barrels above the commission's January allowable and 302,751 barrels in excess of the bureau.

Increasing scarcity of kerosene, with correspondingly higher quotations, stood out strongly in the week's refined-oil market developments.

Daily Average Production for Week

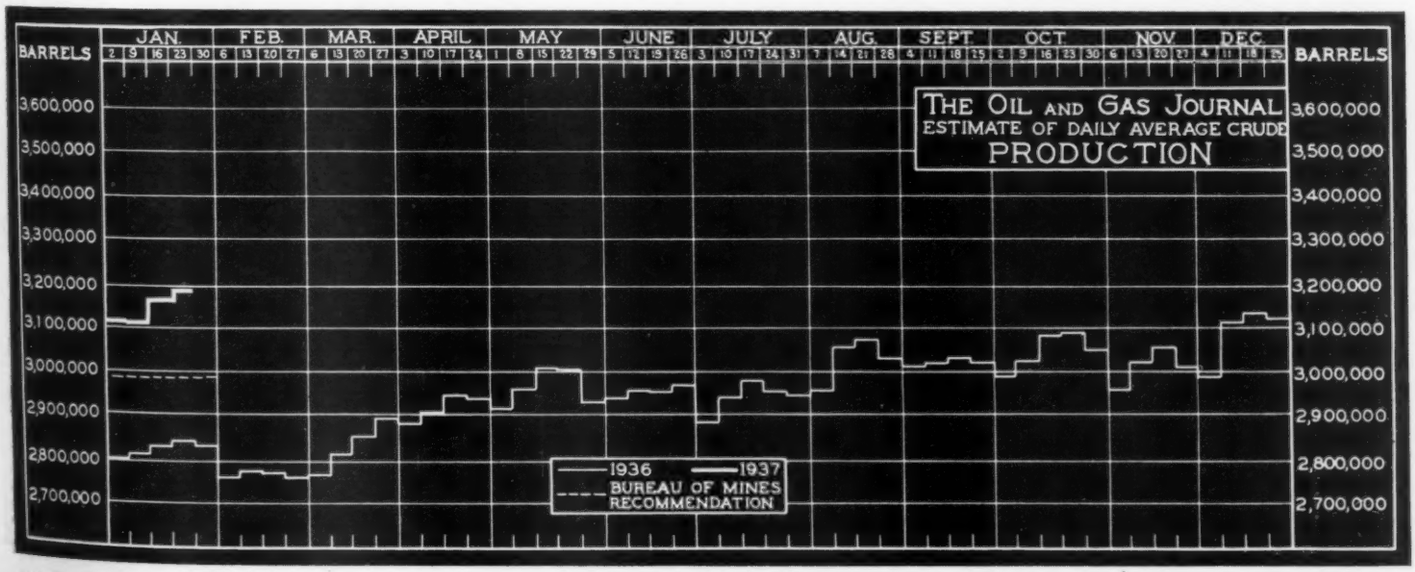
	Jan. 23, 1937	Bur. Mines Jan. est.	Jan. state allowable	Jan. 16, 1937
Oklahoma City	155,975	.....	.....	162,200
Seminole-St. Louis	89,800	.....	.....	89,025
Remainder of state	358,500	.....	.....	347,425
Total Oklahoma	604,275	573,100	573,100	598,650
East Texas	451,798	.....	.....	451,789
West Texas	170,694	.....	.....	170,497
North Central Texas	98,250	.....	.....	97,698
Texas Panhandle	73,496	.....	.....	66,197
East Central Texas	104,448	.....	.....	97,495
Gulf Coast—Texas	276,298	.....	.....	275,500
Southwest Texas	89,850	.....	.....	89,650
Total Texas	1,264,834	1,176,000	1,248,907	1,248,826
North Louisiana	76,785	.....	.....	71,590
Gulf Coast—Louisiana	168,100	.....	.....	169,550
Total Louisiana	244,885	216,300	240,650	241,140
Santa Fe Springs	43,300	.....	.....	44,000
Long Beach	62,500	.....	.....	63,300
Kettleman Hills	78,000	.....	.....	75,700
Remainder of state	402,200	.....	.....	408,500
Total California	586,000	559,900	*551,100	591,500
Kansas	178,875	165,600	175,880	169,025
Arkansas	27,360	27,300	.....	27,455
Eastern Fields	115,500	112,200	.....	115,000
Michigan	29,088	29,200	.....	29,534
Southeastern New Mexico	79,030	79,180	91,755	79,770
Rocky Mountain area	67,640	59,620	.....	64,660
Total United States	3,197,487	2,998,400	.....	3,165,560

*Recommendation of Central Committee of California Oil Producers.

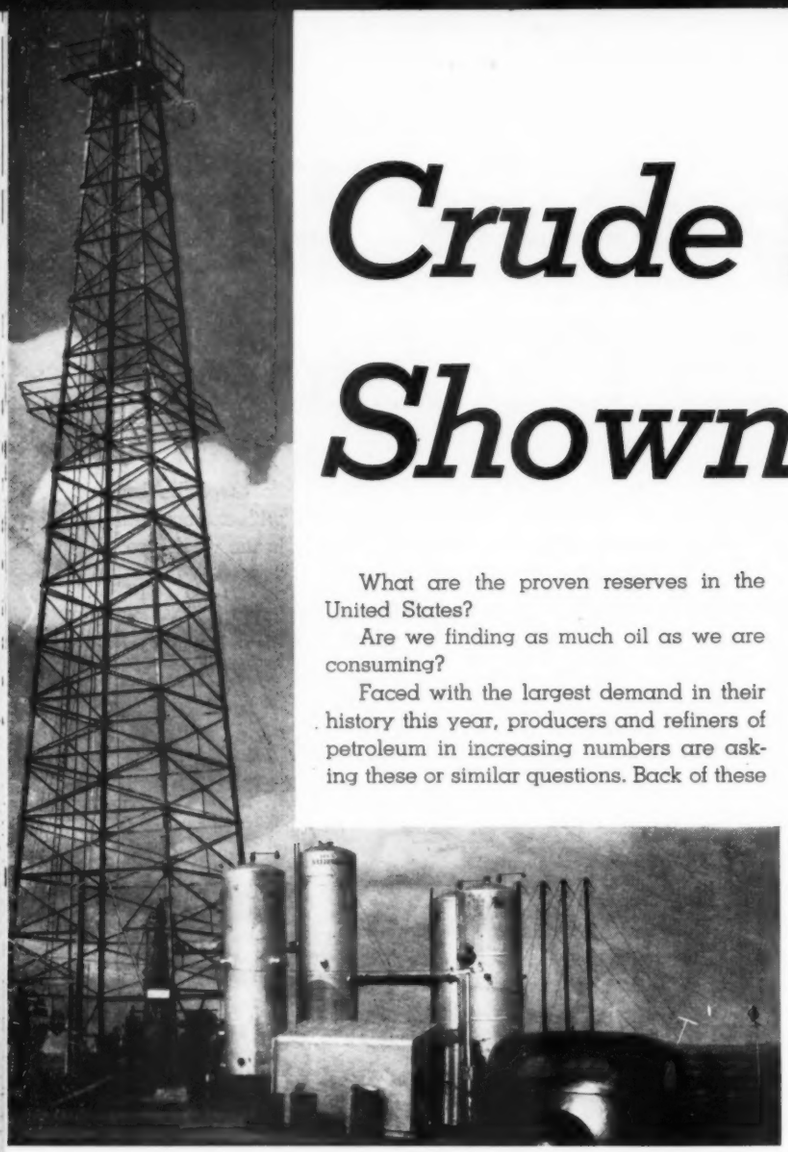
Crude Oil Stocks in United States

(BUREAU OF MINES ESTIMATES)

Week ending January 9, 1937	286,912,000
Week ending January 2, 1937	287,659,000
Week ending January 11, 1936	314,081,000



Crude Reserves Shown by Fields



What are the proven reserves in the United States?

Are we finding as much oil as we are consuming?

Faced with the largest demand in their history this year, producers and refiners of petroleum in increasing numbers are asking these or similar questions. Back of these queries is a realization that a permanent shortage in underground supplies would be a more serious threat to the industry than excessive production ever has been. Aside from this long-range view is the fact that, in the final analyses, prices for crude and finished products in the immediate future center around the variations in the proven reserves. The market in turn will determine the nature and scope of field activities needed to keep available supplies ahead of demand.

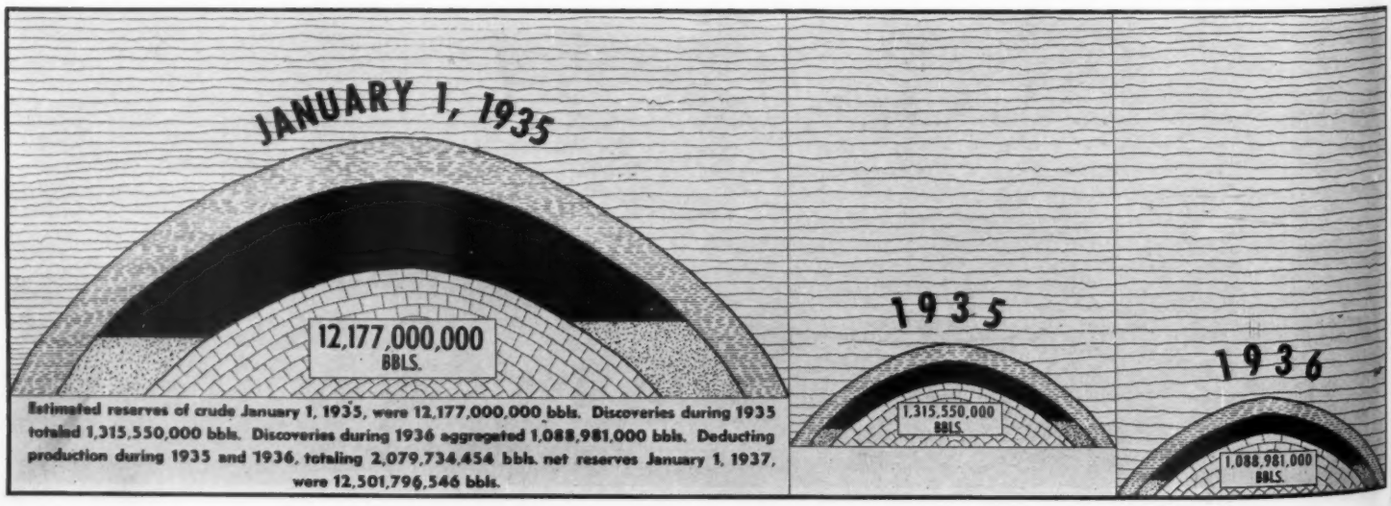
In this issue The Oil and Gas Journal presents a comprehensive answer to the question of known reserves covering 1935 and 1936. The report gives the first national data ever published in which the estimated new discoveries by fields measured in acreage and barrels are shown. Previous reports have been confined either to totals for the entire country or by states, leaving those interested uninformed as to how the estimates were determined and confused as to their value as a barometer of conditions in the industry.

In making available the detailed estimates by fields it is realized that the determination of how much crude oil can be brought 1,000 to 10,000 feet to the surface, is not an exact science. It is believed, however, that the greater knowledge of producing horizons obtained from the studies made by engineers and geologists, has removed the estimation of underground reserves from the field of guesswork. The percentage of error is low enough so the detailed and aggregate data give the industry a yardstick with which to measure its operations from time to time.

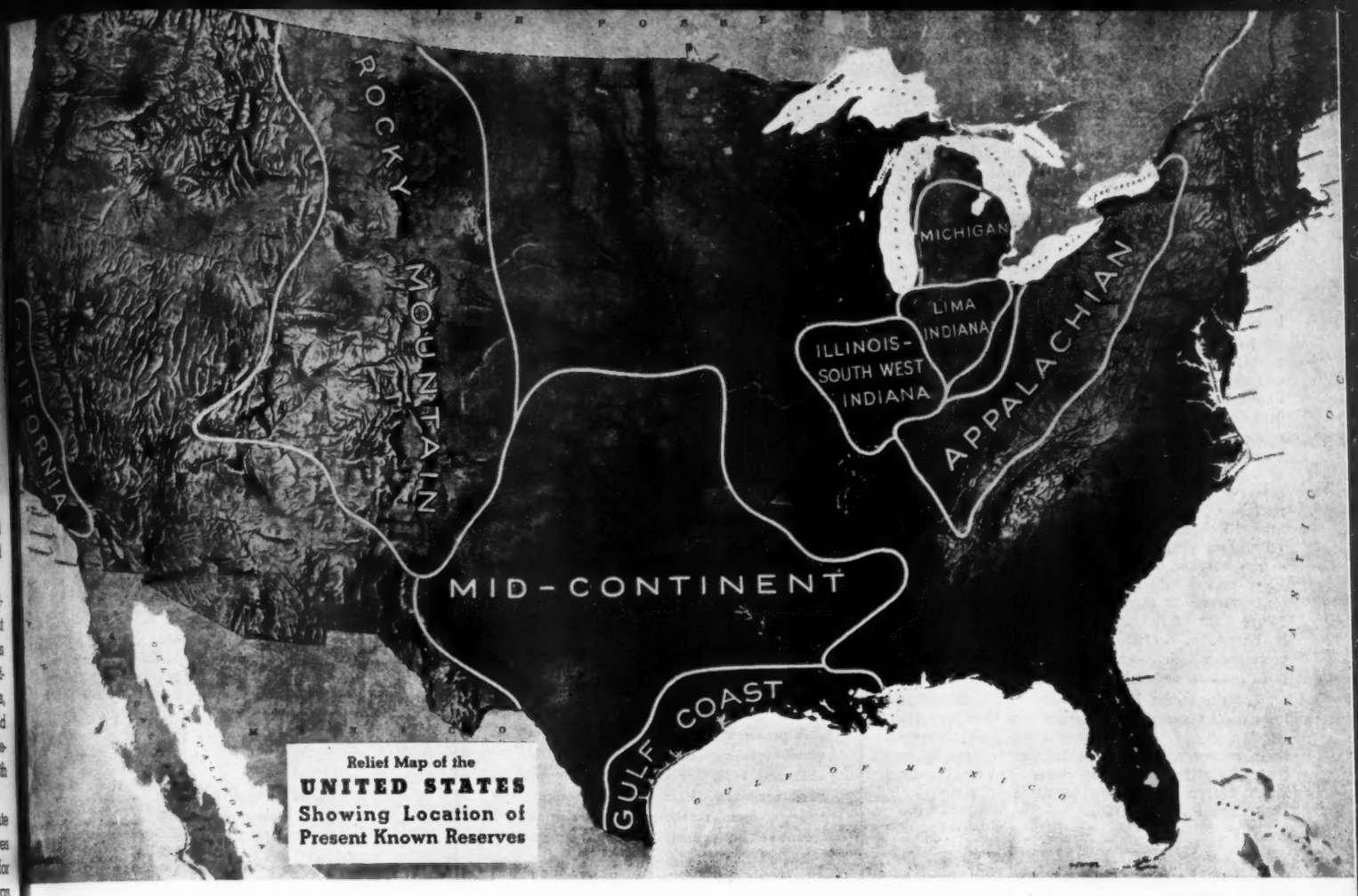
The report of a committee of the American Petroleum Institute completed the latter part of 1935 giving estimated proven reserves by states as of January 1 of that year makes possible a basis for determining the known reserves at the start of this year. This was done as shown in the accompanying table by adding the new discoveries of 1935 and 1936 to the A.P.I. figures and subtracting the oil produced during those two years.

These data show that for the two years the domestic industry more than held its own in maintaining reserves. In 1935 the estimated new discoveries totaling 1,315,550,000 barrels exceeded the production of 990,620,755 barrels, but in 1936 new discoveries and production were practically equal. For the two years it is estimated that 324,859,546 barrels was added to the A.P.I. figure of 12,177,000,000 barrels so that at the start of this year the industry had established underground reserves of 12,501,839,546 barrels of crude, which over a period of years can be made available for refinery processing.

The information by fields was obtained by The Oil and Gas Journal staff located in all parts of the country. They consulted geologists and engineers and in most cases obtained several estimates for each discovery. Acreage based on the geological information and calculated thicknesses of producing horizons were usually the basis for the final estimate. Methods used by engi-



Estimated reserves of crude January 1, 1935, were 12,177,000,000 bbls. Discoveries during 1935 totaled 1,315,550,000 bbls. Discoveries during 1936 aggregated 1,088,981,000 bbls. Deducting production during 1935 and 1936, totaling 2,079,734,454 bbls. net reserves January 1, 1937, were 12,501,796,546 bbls.



Relief Map of the **UNITED STATES** Showing Location of Present Known Reserves

neers in different parts of the country varied with the conditions peculiar to their sections. The method commonly accepted was the one adopted in calculating the reserves.

There was little disagreement where the producing structure had been definitely outlined with wells and where the production had continued over a long enough period so that underground conditions and sand thickness could be determined. In the fields where only a few wells had been drilled the estimates were confined to proven areas indicated by these tests. There were cases in which only one well had been completed and due to known structural conditions it was safe to base the estimated reserve on only the 10 to 40 acres proven by this test. New sands in old producing areas were considered as new discoveries and added to the reserves. The new discoveries of 1935 and 1936 were generally found at lower depths than in previous years.

All reserves were credited to the year in which they were discovered. Later extension tests may either decrease or increase the proven territory. This in effect means that the reserves credited to any year may change from time to time. The tendency in the past has been for the decreases to offset the increases so there is little change in the total figures. In this connection it is known that private estimates of reserves made following the A.P.I. report indicated the reserves credited to certain states were too large based on subsequent developments while others were too

Known Reserves January 1, 1935, and 1937, New Discoveries and Production for 1935 and 1936

	A.P.I ESTIMATE OF PROVEN RESERVES JAN. 1, 1935	NEW DISCOVERIES 1935	NEW DISCOVERIES 1936	RESERVES PLUS DISCOVERIES	PRODUCTION 1935	PRODUCTION 1936	TOTAL PRODUCTION 1935 and 1936	ESTIMATED PROVEN RESERVES JAN. 1, 1937	†CHANGE INCREASE (+) DECREASE (—)
California	3,500,000,000	7,500,000	132,500,000	3,640,000,000	207,832,131	214,756,327	422,588,458	3,217,411,542	—282,588,458
Rocky Mountains:									
Wyoming	250,000,000	66,400,000	16,000,000	332,400,000	13,237,765	14,268,839	27,506,604	304,893,396	+ 54,893,396
Montana	60,000,000	.....	6,859,000	66,859,000	4,367,228	5,798,661	10,165,889	56,693,111	— 3,306,889
Colorado	12,000,000	4,000,000	.....	16,000,000	1,555,542	1,612,760	3,168,302	12,831,698	+ 831,698
Central and Southern States:									
New Mexico	350,000,000	60,000,000	195,000,000	605,000,000	20,154,321	26,647,459	46,801,780	558,198,220	+208,198,220
Texas	5,500,000,000	684,879,000	395,047,000	6,579,926,000	391,592,331	424,396,034	815,988,365	5,763,937,635	+263,937,635
Oklahoma	1,200,000,000	161,290,000	153,435,000	1,514,725,000	182,596,874	200,880,705	383,477,579	1,131,247,421	— 68,752,579
Kansas	400,000,000	143,100,000	155,090,000	698,201,000	53,364,446	57,084,490	110,448,936	587,752,064	+187,752,064
Arkansas	75,000,000	.....	1,200,000	76,200,000	11,138,586	10,697,345	21,835,931	54,364,069	— 20,635,931
N. Louisiana	55,000,000	100,000,000	650,000	155,650,000	9,629,495	26,749,221	36,379,716	119,271,284	+ 64,271,284
Coastal Louisiana	320,000,000	75,650,000	8,700,000	404,350,000	40,657,131	54,057,795	94,714,926	309,635,074	— 10,364,926
Eastern States:									
Illinois	35,000,000	.....	2,000,000	37,000,000	4,351,000	4,439,000	8,790,000	28,210,000	— 6,790,000
Indiana	5,000,000	.....	.....	5,000,000	767,000	792,000	1,559,000	3,441,000	— 1,559,000
Kentucky	35,000,000	4,500,000	1,500,000	41,000,000	5,324,000	5,638,000	10,962,000	30,038,000	— 4,962,000
Michigan	45,000,000	8,220,000	21,000,000	74,220,000	15,789,905	11,977,063	27,766,968	46,453,032	+ 1,453,032
New York	40,000,000	.....	.....	40,000,000	4,241,000	4,626,000	8,867,000	31,133,000	— 8,867,000
Ohio	30,000,000	.....	.....	30,000,000	4,121,000	3,837,000	7,958,000	22,042,000	— 7,958,000
Pennsylvania	240,000,000	.....	.....	240,000,000	15,899,000	17,041,000	32,940,000	207,060,000	— 32,940,000
West Virginia	25,000,000	.....	.....	25,000,000	3,959,000	3,814,000	7,773,000	17,227,000	— 7,773,000
Totals	12,177,000,000	1,315,550,000	1,088,981,000	14,581,531,000	*990,620,755	1,089,113,699	*2,079,734,454	*12,501,839,546	+324,839,546

*Includes 43,000 bbls. miscellaneous. †Change in proven reserves from Jan. 1, 1935 to Jan. 1, 1937.

small. In addition to emphasizing that reserves on a given date are based on information available at that time and subject to change later due to any one of several possible developments, production engineers also stress the part price has in determining the volume of reserves. Secondary recovery methods have been perfected to the point where oil which is not now carried as a reserve will be recovered provided prices advance to higher levels.

In this connection attention is called to the fact that the 1935 and 1936 data do not include estimates covering the increase in reserves brought about by the application of water-flooding in the Mid-Continent. This practice has been placed on a commercial basis in the Nowata area of Oklahoma, one of the oldest shallow producing sections of the Mid-Continent. This area is carried on reserve reports as a stripper section of little importance. The general application of water-flooding will change this situation so that the Bartlesville sand production in Oklahoma may be given a new reserve of several hundred million barrels. Price enters into this situation as it does in several others. It is recalled in this connection that 75 per cent of the proven reserve in Pennsylvania is based on water-flooding and other recovery methods which may later have widespread applications in several states.

For the entire United States 11 states had less known oil reserves on January 1 of this year than on January 1, 1935, while seven had increased their reserves. The most important decline was that of California. That state, however, made a much better record in finding new reserves in 1936 than it did in 1935.

TEXAS

Among the states showing increases Texas led with a gain of 263,937,635 barrels. The Texas discoveries for the two years were as follows:

	1935	1936
Eastern Texas	75,500,000	125,000,000
West Texas	57,894,000	29,900,000
Gulf Coast Texas	345,350,000	91,850,000
Southwest Texas	204,135,000	126,010,000
North and Central Texas	2,000,000	2,787,000

In tabulating the new reserves discovered in Texas in 1935 and 1936 the importance of the Anahuac field in Chambers County opened in 1935 on the Gulf Coast is noticeable. It is estimated that out of 12 new fields found in that area in 1935 with total reserves of 345,350,000 barrels the Anahuac field accounts for 250,000,000 barrels. In 1936 there were 21 new pools opened in the Texas Gulf Coast area with an estimated reserve of 91,850,000 barrels. Most of these pools were less than 600 acres in size, the largest being Heyser in Calhoun County which contains 3,200 acres.

In eastern Texas the Rodessa field was extended across the Texas-Louisiana line with an estimated reserve of 75,000,000 barrels, while Talco, in Franklin and Titus counties is given 100,000,000 barrels of new oil.

The most important discovery in Southwest Texas was the Loma Novia field in Duval County credited with 7,400 acres and 40,000,000 barrels reserve. In all there were 59 new discoveries in Southwest Texas in 1935 and 1936 including lower producing formations in older fields.

Central Texas is credited with only three new discoveries in 1935 and 1936 with a little less than 2,000 acres of new reserves estimated at 4,787,380 barrels. North Central Texas likewise had few new discoveries in the past two years. West Texas had 17 new fields added in 1935 and 1936 embracing about 30,000 acres and containing about 87,000,000 barrels of new oil. The Texas Panhandle shows one new pool in Gray County.

New Mexico is the state in which the next largest amount of new oil was discovered in 1935 and 1936. Six new fields were opened in Lea County with a total acreage of 39,120 acres and a net increase of 208,198,220 barrels in reserves. From a percentage angle, this gain exceeds that of any other state. The Monument field was the outstanding discovery in 1935 and this field's size was increased materially by the drilling done in 1936. A line of sand pools were opened along the eastern edge of Lea County in 1936.

During 1935 and 1936 Kansas is credited with the opening of new pools in 19 counties with a total new reserve of about 300,000,000 barrels and proven fields of 65,330 acres total. The numerous pools found in these 19 counties are not indicated in the table because the list would be very long and extensions indicate many oil bodies will connect up as drilling continues.

The only other areas to show increases in oil in reserve are North Louisiana, Wyoming and Michigan. The big discovery in those three areas was Rodessa in North Louisiana credited with 8,000 acres and 100,000,000 barrels of new oil. In Wyoming the new oil was found in deeper producing horizons, particularly the Sundance in Medicine Bow, Lance Creek and Quealy fields. Michigan found 29,220,000 barrels of new oil in eight fields but during the same period used 27,766,968 barrels of oil out of the total reserves but still showed a net gain of 1,453,032 bbls.

Oklahoma found 19 new producing horizons in 1935 and 23 in 1936 opening a total new reserve of a little over 310,000,000 barrels but during the same period produced 383,477,579 barrels of oil.

The other important area where several new pools were opened during the two years under consideration was the Louisiana Gulf Coastal region. Fourteen new fields were discovered in this area placing about 5,000 acres on production and in reserve about 84,500,000 barrels of oil.

Two small fields were opened in Arkansas while in Colorado one new pool was found in 1935 and another in 1936. In Montana some old fields have been materially increased in size by drilling during 1935 and 1936 the principal addition being in Cut Bank field, where it is estimated nearly 7,000,000 barrels of oil has been added to the large reserve in that field. One discovery of importance still to be outlined was on the Baker-Glendive structure in eastern Montana where one well was drilled late last year with miscellaneous results and two new wells are now being drilled.

COMMENT INVITED

In presenting the first report ever published giving estimated new reserves by fields for 1935 and 1936, The Oil and Gas Journal invites comment. It is anticipated there will be variations in estimates regarding the reserves shown for some of the new discoveries.

The information on acreage and size of new discoveries was obtained by Journal representatives who consulted leading engineers and geologists familiar with the areas in which the reserves are located. Methods used as explained in the accompanying article were those most adaptable to the known underground conditions.

Constructive criticism by operators, supported by facts they have developed covering the areas in which they are interested, will be particularly welcome.

CALIFORNIA

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Ten Section, Kern	1,000	50,000,000
Greeley, Kern	1,000	50,000,000
Santa Maria Valley, Santa Barbara	1,000	15,000,000
Dominguez (Eighth Callender Zone), Los Angeles	500	5,000,000
Wilmington, Los Angeles	1,000	7,500,000
Padre Canyon, Ventura	500	5,000,000
Total	5,000	132,500,000

Discoveries in 1935

El Segundo, Los Angeles	500	7,500,000

WYOMING

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Badger Basin, Park	1,000	4,000,000
Garland, Big Horn	200	3,000,000
Byron, Big Horn	400	6,000,000
Wertz, Carbon	300	3,000,000
Total	1,900	16,000,000

Discoveries in 1935

Medicine Bow, Carbon	1,250	25,450,000
Rock River, Carbon	135	1,800,000
Quealy, Albany	200	3,000,000
Lance Creek, Niobrara	2,150	35,500,000
Hidden Dome, Washakie	160	250,000
Sheep Creek, Fremont	100	400,000
Total	3,975	66,400,000

MONTANA

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Cut Bank, Glacier	4,573	6,859,000

COLORADO

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Powder Wash, Moffat	250	2,500,000

Discoveries in 1935

Gramps, Archuleta	400	4,000,000

NEW MEXICO

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Monument, Lea	15,760	150,000,000
Hardy, Lea	4,000	16,000,000
Penrose, Lea	5,100	15,300,000
Skelly Sims, Lea	2,560	7,680,000
Mattix, Lea	3,800	1,400,000
Langlie, Lea	1,900	4,750,000
Total	33,120	195,570,000

Discoveries in 1935

Monument, Lea	6,000	60,000,000

NORTH TEXAS

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Bryson, Jack	2,000	12,000,000
Anderson & Kerr, Cooke	600	4,500,000
Total	2,600	16,500,000

TEXAS PANHANDLE

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Furneaux, Gray	1,000	3,000,000

EASTERN TEXAS

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Talco, Titus and Franklin	10,000	100,000,000
Sulphur Bluff, Hopkins	3,245	25,000,000
Total	13,245	125,000,000

Discoveries in 1935

Camp Hill, Anderson	120	500,000
Rodessa, Cass	6,200	75,000,000
Total	6,320	75,500,000

CENTRAL TEXAS

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Spurrier, Jones	400	600,000
Guitar, Jones	700	2,187,380
Total	1,300	2,787,380

Discoveries in 1935

Lueders, Jones	640	2,000,000
Total	640	2,000,000

WEST TEXAS

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Cummins, Ector	2,000	12,000,000
Sand Hills, Crane	1,920	7,680,000
Ray, Upton	600	1,800,000
Dodson, Glasscock	640	3,200,000
Landreth, Gaines	640	2,560,000
Albaugh, Dawson	40	100,000
Averitt, Gaines	640	2,560,000
Total	6,480	29,900,000

Discoveries in 1935

Goldsmith, Ector	7,500	60,000,000
Foster, Ector	5,120	25,600,000
Johnson, Ector	640	194,000
Scharbauer, Ector	1,640	9,840,000
Davidson, Ector	160	320,000
McKnight, Crane	640	480,000
Keystone, Winkler	7,040	56,320,000
Rotan, Fisher, Fisher	200	1,500,000
Richards, Garza	160	640,000
Bennett, Yoakum	640	3,000,000
Total	23,740	57,894,000

SOUTHWEST TEXAS

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Alta Mesa, Brooks	100	500,000
Bentonville, Jim Wells	500	3,000,000
Colorado, Jim Hogg	100	500,000
El Mesquite, Duval	50	200,000
Flour Bluff, Nueces	3,700	60,000,000
La Sal Vieja, Willacy	100	1,0000,00
Loma Vista, Duval	50	250,000
Macdona, Bexar	10	10,000
McCampbell, Aransas	500	2,250,000
Palangana, Duval	20	200,000
Peters, Duval	200	1,000,000
Sullivan, Nueces	10	50,000
Vest, Bee	300	1,000,000
Weser, Goliad	200	1,000,000
West Premont, Jim Wells	50	100,000
Oakville, Live Oak	200	1,000,000
Alta Verde, Brooks	50	100,000
North Kohler, Duval	600	4,250,000
Government Wells, Duval:		
2,400-foot sand	100	200,000
Samfordyce, Hidalgo:		
3,040-foot sand	50	100,000
2,966-foot sand	50	100,000
Saxet, Nueces:		
4,500-foot sand	1,950	14,000,000
5,800-foot sand	2,000	33,000,000
6,300-foot sand	500	1,000,000
West Tuleta, Goliad:		
3,700-foot sand	1,120	1,200,000
Total	12,510	126,010,000

Discoveries in 1935

Baldwin, Nueces	200	1,000,000
Charamousca, Duval	50	175,000
Clara Driscoll, Nueces:		
3,750-foot sand	800	4,000,000
3,900-foot sand	50	500,000
Colmena, Duval	100	150,000
Dinero, Live Oak	200	800,000
Dirks, Bee	1,650	9,000,000
Foley, Bee	200	750,000
Fort Merrill, Live Oak	100	400,000
Hoffman, Duval	500	2,250,000
Hords Creek, Goliad	100	500,000
Labbe, Duval	20	60,000
Loma Alta, McMullen	100	250,000
Loma Novia, Duval	7,400	40,000,000
Lopez, Webb-Duval	3,000	30,000,000
Mercedes, Hidalgo	250	1,000,000
O'Hern, Webb-Duval	1,450	9,300,000
Pearsall, Frio:		
Navarro	500	1,000,000
Buda	100	700,000
Austin	2,000	4,500,000
Piedra Lumbre, Duval	400	2,000,000
Plummer, Bee	100	500,000
Plymouth, San Patricio:		
5,500-foot sand	200	1,000,000
5,600-foot sand	2,750	20,000,000
5,900-foot sand	500	2,500,000
Ray, Bee	500	3,000,000
Rutledge, Bee	100	300,000
Saxet Heights, Nueces	1,750	5,000,000
Seven Sisters, Duval:		
2,200-foot sand	700	3,500,000
2,500-foot sand	4,000	28,000,000
2,700-foot sand	300	3,000,000
Taft, San Patricio:		
4,900-foot sand	500	6,000,000
3,900-foot sand	500	10,000,000
Saxet (4,400-ft. sand)	1,800	13,000,000
Total	32,870	204,135,000

GULF COAST TEXAS

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Amelia, Jefferson	2,050	18,500,000
Clinton, Harris	125	950,000
Cotton Lake, Chambers	1,500	14,250,000
Fairbanks, Harris	600	4,000,000
Five Corners, Wharton	250	200,000
Grapeland, Houston	100	400,000
Greens Lake, Galveston	150	550,000
Hawkinsville, Matagorda	75	400,000
Heyser, Calhoun	3,200	22,500,000
Hitchcock, Galveston	100	400,000
Hughes, Victoria	50	250,000
Lakeview, Wharton	20	gas
Lockridge, Brazoria	500	4,000,000
Magnet, Wharton	125	750,000
Nome, Jefferson	1,800	12,350,000
Old Ocean (9,900-ft. sand), Brazoria	100	300,000
Seabreeze, Chambers	200	850,000
Segno, Polk	500	4,000,000
Silsbee, Hardin	600	5,000,000
South Bay City, Matagorda	125	1,200,000
Van Vleck (8,200-ft. sand), Matagorda	100	1,000,000
Total	12,270	91,850,000

Discoveries in 1935

Anahuac, Chambers	6,000	250,000,000
Gillock area, Galveston	200	1,500,000
Hardin, Liberty	150	500,000
Katy, Waller	100	wet gas
Mauritz, Jackson	100	850,000
Pickett Ridge, Wharton	1,350	12,500,000
Placedo (4,700- and 6,000-ft. sands), Victoria	3,650	35,000,000
South Houston (4,000- and 4,700-ft. sands), Harris	700	9,500,000
Turtle Bay, Chambers	650	5,500,000
Van Vleck (7,400-ft. sand), Matagorda	1,900	20,000,000
Warden, Victoria	100	gas
Withers, Wharton	1,200	10,000,000
Total	16,100	345,350,000

OKLAHOMA

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Billings (Wilcox), Noble	440	10,000,000
N. Earlsboro, Seminole	1,220	5,300,000
W. Lovell, Logan	260	2,600,000
Moore, Cleveland	800	25,000,000
Seward, Logan	160	400,000
Cement (deep), Caddo	1,000	10,000,000
E. Seminole (Cromwell sand), Seminole	1,000	5,000,000
Township 13-10, Okfuskee	80	480,000
Oklahoma City (Extension), Oklahoma	2,600	65,000,000
Zimmerman, Lincoln	160	400,000
Township 19-5, Payne	160	480,000
Carr, Payne	160	480,000
Adams, Hughes	200	1,500,000
Township 4n-3e, Garvin	160	400,000
Sheldon, Pontotoc	80	200,000
North Olympic, Okfuskee	1,550	5,425,000
Palmer, Pontotoc	340	1,190,000
South Hewitt, Carter	40	100,000
Fitts (Oil Creek sand), Pontotoc	100	500,000
Township 3n-4e, Pontotoc	100	100,000
N. Bethel, Seminole	560	4,200,000
N. Lucien, Noble	640	7,680,000
Crescent (lower Wilcox), Logan	200	7,000,000
Total	12,010	153,435,000

Discoveries in 1935

Bay, Kay	250	1,000,000
Billings (Detrital), Noble	560	2,800,000
Britton, Oklahoma	1,200	12,000,000
W. Chandler, Lincoln	640	6,400,000
Conservation, Pontotoc	1,060	1,590,000
Fitts, Pontotoc:		
Upper McLish	2,400	48,000,000
Basal McLish	430	12,900,000
Fox deep sand, Carter	2,500	10,000,000
Grayson, Seminole	300	1,800,000
Jesse, Pontotoc	2,000	30,000,000
S. Keokuk, Seminole	1,800	13,500,000
S. Langston, Logan	160	1,000,000
E. Konawa, Seminole	400	600,000
Marathon, Noble	300	1,200,000
Olympic, Hughes	2,750	10,000,000
Sasakwa, Seminole	200	1,500,000
Stillwater, Payne	160	1,000,000
Tipton, Jackson	1,000	2,000,000
Wofford, Seminole	400	4,000,000
Total	18,510	161,290,000

KANSAS

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Russell County	7,360	28,990,000
Ellis County	3,980	16,880,000
Barton County	5,600	20,640,000
Chautauqua	520	3,000,000
Rice County	8,080	52,100,000
Sumner County	600	1,500,000
Rooks County	320	960,000
Clark County	640	4,800,000
Cowley County	600	2,100,000
Pawnee County	640	3,200,000
Ness County	400	6,200,000
Trego County	640	2,560,000
McPherson County	1,000	5,000,000
Harvey County	600	4,200,000
Ellsworth County	320	1,600,000
Elk County	160	800,000
Butler County	160	560,000
Total	31,300	155,090,000

Discoveries in 1935

Barton County	3,760	18,960,000
Russell County	11,640	37,010,000
Ellis County	2,120	10,580,000
Rice County	2,840	14,720,000
Reno County	4,020	14,320,000
Ellsworth County	1,280	7,680,000
Butler County	260	800,000
Cowley County	1,480	4,630,000
Sedgwick County	970	1,455,000
Elk County	200	500,000
Sumner County	400	5,536,000
Stafford County	1,200	4,500,000
Scott County	400	1,400,000
Rooks County	600	2,100,000
Woodson County	400	3,200,000
Harvey County	960	6,720,000
Steckel field extensions	1,500	9,000,000
Total	34,030	143,111,000

ARKANSAS

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Snow Hill (deep sand at Smackover), Permian lime, Ouachita	200	300,000
Troy (both Nacatoch and Tokio levels), Nevada	120	900,000
Total	320	1,200,000

NORTH LOUISIANA

Discoveries in 1936

Pool and parish—	Estimated productive acreage	Estimated ultimate production
Cotton Valley (deep sand), (Hallowan sand of Travis Peak), Webster	40	250,000
Sligo (flank of gas field), Pettitt sand of Trinity age, Bossier	160	400,000
Total	8,200	100,650,000

Discoveries in 1935

Rodessa, Caddo	8,000	100,000,000

GULF COAST LOUISIANA

Discoveries in 1936

Pool and parish—	Estimated productive acreage	Estimated ultimate production
Bayou Mallett, Acadia	300	2,500,000
Big Lake, Cameron	150	1,000,000
Charenton, St. Mary	150	1,200,000
Lafitte (9,900-ft. sand), Jefferson	100	1,000,000
South Jennings, Jeff Davis	100	750,000
Valentine, Lafourche	450	2,250,000
Total	1,250	8,700,000

Discoveries in 1935

Cheneyville, Rapides	100	1,500,000
Garden Island Bay, Plaquemines	150	5,000,000
Jeanerette, St. Mary	500	10,000,000
Lafitte (9,600-ft. sand), Jefferson	1,650	36,500,000
Lake Hermitage, Lafourche	125	1,150,000
St. Martinsville, St. Martin	125	2,500,000
Tepetate, Acadia	2,100	18,000,000
Dog Lake (7,100-ft. sand), Terrebonne	100	1,000,000
Total	4,850	75,650,000

ILLINOIS

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Bartelso, Clinton	500	2,000,000

KENTUCKY

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Bealers Knob, McLean	250	1,500,000

Discoveries in 1935

Livermore, McLean	700	4,500,000

MICHIGAN OIL FIELDS

Discoveries in 1936

Pool and county—	Estimated productive acreage	Estimated ultimate production
Geneva, Midland	600	600,000
Clayton, Arenac	2,000	6,000,000
North Vernon, Isabella	800	2,000,000
Sherman, Isabella	1,600	4,000,000
Buckeye, Gladwin	2,800	8,400,000
Total	7,200	21,000,000

Discoveries in 1935

Crystal, Montcalm	2,600	7,020,000
Birch Run, Saginaw	1,200	1,200,000
Total	3,800	8,220,000

SPARKS FROM THE NEWS

Superior gasoline and lubricants made possible the powerful engine which enabled an airplane to establish a new cross-country record.

Texas and Oklahoma plan to end race to see which state can tax oil industry the most. They will try for dead heats in the future.

Known oil reserves in this country at start of year totaled 12,500,000,000 barrels. A little more than 10 years' supply based on expected demand this year.

With an 8 per cent increase in gasoline demand in prospect an observer suggests that refiners refrain from trying to produce it all the first quarter.

Damaged plants, stations and terminals and held-up orders emphasize the significance of the Ohio flood to refiners.

East Texas passed the 22,000-well mark last week. More than were drilled by the entire domestic industry in 1935.

"Meet the Continental crude advance" is the I.P.A.A. solution for the higher operating costs assured for 1937.

With a minimum of noise, New Mexico made a larger percentage gain in oil reserves than any other state last year. Its gain in net reserves was exceeded by only one other state.

British company plans to introduce in this country a car with 2½ h.p. motor making 80 miles per gallon of gasoline.

Motor fuel stocks are now about what they were at the end of February last year.

With their own operations more and more electrified it is difficult for producers and refiners to understand the record consumption of kerosene last year. There are still millions of homes where the kerosene lamp is used nightly.

Buyers' nominations for crude oil are often like the subscriptions to a desirable bond issue. They exceed what they expect to get.

The day of winter prices for natural gasolines under 3 cents a gallon apparently is definitely past. Quotations are recovering from the December slump.

Strength in fuel oil market is indicated by action of owners of two large plants preparing to burn powdered coal.

Twenty-five millionth Ford is now a user of petroleum products. Before all are junked they will have consumed three billion barrels of gasoline, or six times 1936 domestic production.

HIGH OCTANE HELPED

100-octane gasoline and improved lubricants helped Howard Hughes establish a new transcontinental flight record of seven hours, 28 minutes and 55 seconds for 2,490 miles. Fuel consumption of 10 miles per gallon was obtained despite average speed of 5½ miles per minute.—(Pictures, Inc.)

Seven-Year Completion Record in 1936; Important Results

By JAMES McINTYRE

In the busiest year in the field since 1929, 25,888 wells were completed in 1936, of which 17,802 were oil-producing wells, 723 were water-intake wells in the Bradford and Allegany fields in Pennsylvania and New York, 5,295 were dry and 2,068 were gas wells.

New pools were brought in in every district in Texas last year. West Texas experienced a great revival of operations and added a number of new producing spots, at the same time going in for a big extension program in pools that had been opened in 1934 and 1935. The Talco and Sulphur Bluff pools in northeastern Texas were important finds. Two good pools were opened in the North Texas district in Cooke and Jack counties. Central Texas contributed pools in Jones County and the Panhandle shows one pool opened last year. Southwest Texas had its greatest year if the lower Gulf Coastal area is to be reckoned as in Southwest Texas. In addition to the Flour Bluff field, which is really a big potential producer, a host of smaller pools were opened and the Gulf Coast accounted for four new pools that are estimated good for 66,000,000 bbls. eventually, together with other smaller finds.

In Lea County, New Mexico, two sizeable pools were opened and the Monument and Eunice fields extended with excellent results.

In Oklahoma the Oklahoma City extension was virtually a new field because until the city government, after a referendum vote, gave permission to drill in certain restricted districts that area was in forbidden land and could not be definitely counted as a large oil reserve only through migratory drainage. Several deep sand discoveries and the discovery of nine pools worthy of consideration as reserves gave the state a good year. The Fitts pool in Pontotoc County proved itself a field of several rich pay sands and many wells were drilled to these deep pays, or completed wells deepened to them, while the Hunton lime zone, which lies above the big pays in Fitts, called for considerable drilling. Thirty-four oil and gas pools were found in Oklahoma last year.

Fifty-three oil pools and 12 gas fields were added in Kansas. Taken altogether, the oil pools provided a large reserve. The Hauschild pool in Rice County, Trapp in Russell County and the Bloomer pool in Barton County were among the leading pools developed by wildcatters, but one of the outstanding strikes of the year was in Clark County, in southwestern Kansas, as it opens a large area to production. The Silica pool in Rice and Barton counties was extended considerably and the Lerada pool in Reno County, opened late in 1935, proved a valuable find and came in for considerable drilling and extensions to its originally estimated limits.

Summary of Completed Wells in All the Fields of the United States in 1936 and 1935

		Comp.	Init. prod. (bbls.)	Dry holes	Gas wells	Oil wells	Av. init. prod. (bbls.)
Eastern	1936	*4,528	11,238	348	722	2,735	4.1
	1935	*3,047	7,236	277	468	1,857	3.9
Central Ohio	1936	378	1,323	94	239	45	29.4
	1935	190	787	52	113	25	32.3
Lima	1936	81	476	9	37	35	13.6
	1935	94	614	22	29	43	14.3
Indiana	1936	196	1,067	92	59	45	23.7
	1935	197	754	86	74	37	20.4
Kentucky	1936	326	16,758	96	10	220	76.2
	1935	253	6,777	70	16	167	40.5
Michigan	1936	795	63,840	245	212	338	189.0
	1935	593	180,204	168	103	322	559.6
Mississippi	1936	17	.....	13	4	0	...
	1935	16	.....	13	3	0	...
Alabama	1936	4	.....	4	0	0	...
	1935	4	.....	4	0	0	...
Illinois	1936	35	1,288	8	0	27	47.7
	1935	11	342	6	0	5	68.4
Kansas	1936	1,721	965,777	446	61	1,214	799.5
	1935	1,210	845,522	281	39	890	950.0
Oklahoma	1936	2,565	1,264,939	649	126	1,790	706.7
	1935	2,010	1,154,182	579	110	1,321	873.7
North Central Texas	1936	2,654	179,181	1,196	40	1,418	126.4
	1935	2,585	157,866	1,197	35	1,353	116.7
East Central Texas	1936	407	42,242	110	14	283	149.3
	1935	251	7,825	140	18	93	84.1
East Texas	1936	2,456	95,639	120	1	2,335	40.9
	1935	4,166	204,867	128	5	4,033	50.8
East Texas Border	1936	194	107,003	22	10	162	660.5
	1935	12	1,200	10	1	1	1,200.0
West Texas	1936	1,586	915,473	193	24	1,369	668.7
	1935	830	334,491	152	9	669	500.0
Texas Panhandle	1936	650	254,352	23	161	466	545.8
	1935	706	352,671	41	80	585	602.9
Southwest Texas	1936	2,851	652,945	568	98	2,185	298.9
	1935	1,611	309,996	566	77	968	320.2
Gulf Coast—Texas	1936	1,226	375,217	284	40	902	416.0
	1935	1,074	315,151	304	51	719	438.4
Gulf Coast—Louisiana	1936	392	143,045	128	7	257	556.6
	1935	354	158,633	128	6	220	721.1
North Louisiana	1936	648	348,924	115	127	406	859.4
	1935	343	188,884	121	98	124	1,523.2
Arkansas	1936	89	7,319	60	5	24	305.0
	1935	115	8,276	73	2	40	206.9
Montana	1936	247	15,587	47	34	166	93.9
	1935	186	12,928	38	17	131	98.7
Wyoming	1936	131	63,750	35	8	88	72.4
	1935	92	39,099	28	6	58	674.1
Colorado	1936	29	8,905	17	1	11	809.5
	1935	18	9,961	6	1	11	905.6
New Mexico	1936	552	549,835	47	17	488	1,126.8
	1935	337	610,688	71	4	262	2,330.8
Utah	1936	8	15	6	1	1	15.0
	1935	5	.....	3	2	0	...
California	1936	1,122	374,002	320	10	792	472.2
	1935	1,110	660,980	347	34	729	906.7
Total	1936	25,888	6,460,140	5,295	2,068	17,802	362.8
Total	1935	21,420	5,669,934	4,911	1,401	15,108	375.3
Difference		4,468	790,206	384	667	2,694	12.5

*Eastern field completions include 723 water-intake wells in 1936 and 445 such wells in 1935, all in the Bradford and Allegany fields.

Record for Past 5 Years

Total	1936	25,888	6,460,140	5,295	2,068	17,802	362.8
Total	1935	21,420	5,669,934	4,911	1,401	14,663	375.3
Total	1934	18,197	4,478,701	4,312	1,373	12,512	358.0
Total	1933	12,312	3,016,502	3,312	932	8,068	373.9
Total	1932	15,021	2,368,238	3,550	1,027	10,444	226.8

California reported six new pools last year and experienced the most widespread wildcatting campaign in the history of the state, extending from Oregon state line down to old Mexico. Kern County and Santa Barbara County proved the richest grounds for the wildcatter, supplying three pools of large potentiality. California needed these added reserves as it has been pulling on its old fields for years, additions to its reserves in recent years having come mainly from deeper horizons in old fields.

In an endeavor to stave off a rapidly declining production in the state, Michigan operators completed more wells last year than in any other year since it joined the oil producing states. Three hundred and thirty-eight wells were added and several new pools were discovered but up to the end of the year the new fields had not been developed sufficiently to make any impression on the decline in crude output. Great natural gas reserves were opened by some of the 212 gas wells completed.

North Louisiana nearly doubled its completions in 1936 as compared with the 1935 record. Most of the work was in the development of the big Rodessa field, but a number of discoveries were made including oil on the flank of the Sligo gas field, and a deep-sand pay in the old Cotton Valley shallow pool. A last-of-the-year oil discovery that looked to be of major importance was made in Claiborne Parish, 10 miles west of the Homer field. Arkansas, after several lean years, was given a new Nacatoch pool in Nevada County southeast of Irma, and a deep producing field in Miller County, 4 miles northeast of the Garland City pool.

Southeastern New Mexico's prolific pools were given additions and extensions last year and the Monument field a 1935 discovery, and the Eunice pool, were scenes of great activity throughout the year, greatly increasing their production. In Colorado one new pool was discovered on the Powder Wash structure in Moffat County. A major field was opened in Wyoming in the Tensleep horizon on Wertz dome, Carbon County. Lance Creek also proved a Tensleep discovery. The sand showed large initial production of high gravity oil. Medicine Bow a 1935 discovery was extended.

Two pools in opposite ends of the state were opened in Montana, one in Fallon County and the other in Yellowstone. The Cut Bank field was extended and production increased. This field if it were in a more densely populated state would have been rapidly developed. The structure on which it is located is very large and its producing limits are yet unknown.

Variation in Annual Crude Oil Production of Major Fields in United States, 1927 to 1936, Both Inclusive

(In barrels of 42 gallons)

Pool—	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Santa Fe Springs, California	15,153,578	16,093,931	76,477,464	44,251,396	24,272,660	22,538,036	18,268,904	14,722,264	16,158,795	16,460,142
Elwood-Goleta, California	86,840	895,152	9,435,819	14,606,307	10,470,059	5,441,626	4,918,488	4,113,644	4,559,588	4,478,732
Ventura Avenue, California	17,808,704	18,920,942	20,934,388	17,493,155	16,255,256	12,332,853	12,575,647	9,882,614	10,979,450	12,600,878
Seal Beach, California	16,424,929	12,436,371	14,418,305	8,026,796	4,882,115	4,522,489	3,987,459	3,515,457	3,380,526	3,461,067
Kern River, California	6,098,582	5,071,284	6,089,344	5,349,915	3,847,474	3,387,262	3,208,773	3,704,447	4,518,109	5,136,850
Mountain View, California	.....	.....	.....	.....	.....	.....	231,756	2,609,017	9,228,891	9,712,658
Midway-Sunset, California	31,670,708	27,314,093	25,310,976	23,487,147	18,728,461	17,929,036	17,540,122	19,712,566	20,239,798	21,481,621
Elk Hills, California	10,073,073	8,107,198	6,353,035	6,572,379	4,925,636	4,537,461	4,488,688	3,345,772	3,216,318	3,194,443
Coalinga, California	7,154,599	4,655,284	3,558,843	3,373,078	2,978,392	3,649,578	4,424,043	6,594,950	7,249,417	6,067,079
Fullerton, California	7,008,934	5,743,044	4,813,942	4,423,266	3,626,008	3,018,125	2,964,654	3,744,538	3,611,804	2,960,753
Coyote, California	5,146,864	4,901,988	4,176,035	3,890,047	3,751,857	3,716,467	3,694,139	4,144,036	4,540,417	3,943,619
Montebello, California	5,498,252	4,369,638	3,657,922	3,712,725	2,446,052	2,162,530	1,932,596	1,980,942	2,287,385	3,204,714
Richfield, California	7,884,042	6,798,673	5,776,258	3,643,578	2,443,186	2,263,699	2,466,518	2,925,001	2,803,703	2,442,508
Huntington Beach, California	26,344,697	19,642,278	16,007,030	11,108,203	7,778,549	8,016,801	13,100,489	15,106,258	15,133,293	13,247,490
Long Beach, California	34,541,667	62,467,103	60,495,555	36,599,688	30,166,409	27,435,553	24,825,049	23,067,025	26,562,848	24,994,299
Torrance, California	8,338,938	6,454,067	5,000,218	4,116,846	2,191,781	2,281,274	2,381,875	2,525,990	2,498,442	2,859,892
Inglewood, California	12,571,556	10,762,797	8,768,101	6,429,205	5,289,125	4,869,335	4,059,972	3,376,586	4,477,044	4,546,727
Dominguez, California	5,887,645	4,267,002	3,606,850	3,694,075	4,183,052	6,823,579	6,626,615	6,655,465	7,915,850	9,712,179
Playa Del Rey, California	.....	.....	25,121	4,719,981	9,759,018	5,910,926	4,061,577	3,187,773	5,695,942	4,643,658
Kettleman Hills, California	.....	199,699	1,951,786	6,209,357	16,544,824	21,959,601	21,624,020	21,393,882	27,606,817	29,295,959
Joiner, Texas	.....	.....	.....	29,122	37,932,810	37,131,836	58,145,564	49,345,560	55,006,571	53,421,561
Kilgore, Texas	.....	.....	.....	.....	43,537,815	39,086,616	63,537,717	55,200,902	58,074,728	50,290,190
Longview, Texas	.....	.....	.....	.....	26,257,287	45,725,947	81,186,059	73,953,949	61,991,874	61,077,122
Conroe, Texas	.....	.....	.....	.....	.....	2,499,645	21,286,672	17,143,444	15,269,014	14,909,128
Pecos County, Texas	5,250,173	22,673,875	41,733,955	42,603,498	27,401,174	23,654,666	20,983,060	16,443,127	16,472,495	14,003,494
Grand Falls, Texas	.....	.....	.....	.....	.....	.....	1,133,986	2,224,603	3,745,659	4,935,566
Pampa, Texas	3,966,412	7,795,865	18,406,284	21,782,549	14,861,340	11,244,964	10,386,789	12,333,756	11,176,761	10,892,282
Chalk-Settles, Texas	1,127,269	4,692,236	14,826,190	11,188,886	9,762,304	6,668,057	5,782,469	6,238,916	6,981,618	6,744,644
Barbers Hill, Texas	307,160	306,177	4,523,350	7,865,597	8,085,278	7,383,572	8,127,939	6,866,933	6,801,590	5,496,198
Sugarland, Texas	.....	391,244	4,016,401	4,291,689	4,198,004	3,424,869	2,546,356	2,194,457	2,116,155	1,746,789
Wilbarger County, Texas	4,462,768	8,124,626	10,411,183	7,867,089	4,167,464	3,361,161	2,879,742	3,057,771	2,957,849	3,161,754
Humble, Texas	1,523,844	1,263,983	2,996,409	5,864,035	3,041,585	2,238,043	1,728,362	1,256,970	1,238,147	1,257,942
Pierce Junction, Texas	3,163,585	3,983,484	5,193,061	4,056,270	2,960,390	1,837,673	1,575,223	1,194,564	1,192,221	1,323,147
Shackelford County, Texas	3,038,704	3,639,368	4,145,166	2,319,132	1,203,841	1,445,565	1,159,515	1,959,846	2,115,026	2,457,758
Electra, Texas	5,099,618	4,627,192	4,601,996	3,995,470	2,941,619	2,988,143	2,773,284	2,673,291	2,696,428	2,880,526
Archer County, Texas	9,648,832	7,374,445	6,592,594	6,023,760	4,384,656	4,057,536	4,543,939	7,023,184	6,751,948	5,395,392
Loma Novia, Texas	.....	.....	.....	.....	.....	.....	.....	.....	689,761	4,620,409
Hutchinson County, Texas	32,240,493	13,839,632	9,709,746	7,285,486	3,933,837	4,496,338	3,966,016	4,488,823	4,737,306	5,589,421
Big Lake, Texas	8,668,381	7,039,043	6,425,664	7,016,204	9,501,820	9,068,844	6,851,980	4,627,049	3,609,284	2,948,095
Hendrick, Texas	3,109,523	58,893,863	49,826,190	25,925,581	14,992,723	11,152,545	7,497,934	6,580,082	6,066,681	5,919,516
Luling, Texas	6,099,264	5,097,808	4,246,861	3,476,058	2,948,514	2,653,814	2,442,080	2,145,066	2,013,029	2,070,765
Hull, Texas	5,914,333	4,115,269	3,488,869	3,161,436	2,237,018	1,855,169	1,980,342	3,498,660	2,307,765	1,982,684
Spindletop, Texas	21,264,935	14,332,357	10,183,684	5,997,913	3,209,994	1,442,560	1,168,432	1,152,010	942,913	841,800
Powell, Texas	6,249,034	4,059,389	2,884,177	2,077,524	1,362,278	956,071	990,257	897,667	800,465	817,998
Young County, Texas	3,473,329	2,987,054	2,481,445	5,229,401	4,231,600	3,391,514	3,048,014	3,632,974	3,634,327	4,006,420
Van, Texas	.....	.....	122,139	7,530,222	15,542,023	17,361,174	17,271,227	14,633,277	14,265,088	13,338,524
Refugio, Texas	.....	25,312	2,063,475	11,698,202	9,291,937	3,521,832	2,148,847	1,475,353	1,537,763	1,822,193
Darst Creek, Texas	.....	.....	228,876	11,343,682	7,963,694	6,080,127	4,413,259	3,348,204	3,262,328	1,680,213
Thompson, Texas	.....	.....	.....	.....	731,624	4,223,213	4,938,511	4,215,513	4,131,977	3,528,733
Upton-Crane, Texas	29,583,131	25,261,260	17,195,992	14,152,389	7,102,015	7,375,773	6,155,487	6,214,891	6,323,177	8,615,460
Saxet, Texas	.....	.....	.....	.....	9,373	154,712	821,961	713,668	1,162,222	4,585,637
Greta, Texas	.....	.....	.....	.....	.....	.....	1,161,074	3,961,176	4,708,780	5,583,816
St. Louis-Pearson, Maud, Oklahoma	1,406,020	21,878,954	36,718,245	13,194,525	8,056,449	7,368,077	8,466,897	8,525,557	8,780,671	8,884,709
Oklahoma City, Oklahoma	.....	110,496	8,709,727	34,603,067	44,822,508	33,397,537	66,984,570	60,833,486	53,385,882	51,231,766
Edmond, Oklahoma	.....	.....	.....	.....	.....	.....	.....	91,953	1,478,309	4,370,495
Little River, Oklahoma	5,144,014	24,447,158	28,909,393	17,348,145	9,444,872	6,391,202	6,310,665	5,370,669	5,887,099	5,067,939
Marshall-Lovell-Crescent, Oklahoma	436,213	2,692,520	5,759,444	2,196,202	1,256,441	926,897	731,016	1,662,466	2,366,755	2,609,639
Allen, Oklahoma	593,420	6,958,689	8,971,530	6,579,898	3,839,577	3,255,495	3,342,983	3,065,168	2,896,745	3,076,287
Carr City, Oklahoma	.....	.....	3,309,094	3,280,091	4,262,219	4,251,966	2,748,695	2,039,160	2,002,596	2,215,946
Seminole City, Oklahoma	47,039,644	18,237,004	11,291,330	6,562,504	4,370,314	3,959,604	3,932,217	3,779,065	4,062,102	3,810,242
Earlsboro, Oklahoma	36,885,196	33,321,824	25,602,005	23,398,033	12,699,233	10,689,164	10,915,763	7,679,214	7,414,338	6,600,719
Bowlegs, Oklahoma	36,649,733	23,800,896	12,122,250	6,509,450	4,391,549	4,200,043	3,917,746	3,760,842	1,372,433	4,335,377
Searight, Oklahoma	10,232,511	5,218,241	3,867,349	3,107,065	1,501,928	1,238,664	1,012,542	921,683	1,372,433	1,780,691
Sholem-Alechem-Tatums, Oklahoma	5,255,516	5,328,386	4,829,057	4,852,825	4,579,669	4,330,587	4,348,050	3,993,398	3,160,070	2,560,612
Burbank, Oklahoma	15,266,099	13,060,449	7,435,589	5,717,088	4,566,290	3,974,096	3,516,190	3,406,107	3,101,608	2,826,864
Tonkawa, Oklahoma	7,747,121	4,878,203	3,518,176	2,432,084	1,991,634	1,836,751	1,675,161	1,386,929	1,226,328	1,016,293
Bristow, Oklahoma	7,585,670	5,624,601	5,295,920	4,678,137	3,661,296	3,095,326	3,190,604	3,000,168	3,328,513	3,186,013
Cushing-Shamrock Oklahoma	6,942,017	6,521,413	5,988,122	4,980,031	4,656,393	4,349,054	4,367,112	5,044,132	4,737,897	4,129,184
Cromwell, Oklahoma	4,521,063	3,386,553	2,867,933	2,604,682	1,897,207	1,827,744	1,806,735	1,690,002	1,557,176	1,337,443
Healdton, Oklahoma	5,447,776	5,068,978	4,599,309	4,208,631	4,025,058	3,880,981	3,638,589	3,386,150	3,397,410	3,435,656
Fish, Oklahoma	.....	.....	.....	.....	.....	.....	995,658	1,381,190	3,422,342	3,113,762
Fitts, Oklahoma	.....	.....	.....	.....	.....	.....	.....	329,389	6,900,869	19,908,495
Lucien, Oklahoma	.....	.....	.....	.....	.....	.....	290,151	2,903,269	3,744,015	4,542,441
Garber, Oklahoma	5,292,726	2,943,248	1,973,902	1,639,045	1,293,054	1,066,194	1,005,710	898,110	789,114	733,200
Wewoka, Oklahoma	5,899,957	2,415,180	2,409,118	1,428,714	2,844,277	1,977,067	1,647,181	1,629,124	1,323,796	1,378,538
South Burbank, Oklahoma	.....	.....	.....	.....	.....	.....	.....	2,279,191	4,216,470	5,390,399
Sedgwick County, Kansas	.....	378,851	8,899,688	7,719,802	5,840,234	4,538,283	3,543,473	2,664,499	2,972,619	2,002,314
Eldorado-Augusta, Kansas	10,517,922	9,690,889	9,272,141	9,099,075	7,769,394	6,684,285	5,947,371	7,196,558	6,712,349	6,163,822
Greenwood County, Kansas	12,664,125	9,872,560	7,920,990	7,265,892	5,564,320	4,863,996	4,312,644	4,547,129	4,089,292	3,644,349
Rice County, Kansas	624,264	446,186	290,863	267,894	450,562	858,105	1,935,996	3,905,132	8,069,022	11,427,064
Russell County, Kansas	995,200	1,228,416	1,178,211	1,994,610	1,108,745	933,198	1,067,291	2,548,006	4,146,086	7,074,228
Sumner County, Kansas	6,708,275	7,787,738	4,566,556	3,224,852	2,348,371	1,622,813	1,319,952	1,138,219	2,076,723	3,230,779
McPherson County, Kansas	.....	.....	.....	5,604,670	9,184,393	7,748,212	11,763,473	9,869,841	6,975,064	4,464,429
Caillou Island, Louisiana	.....	.....	.....	.....	.....	.....	338,576	1,355,288	2,872,415	5,232,961
Gillis, Louisiana	.....	.....	.....	.....	.....	.....	.....	46,727	2,172,351	5,653,067
Rodessa, Louisiana-Texas	.....	.....	.....	.....	.....	.....	.....	.....	1,326,116	22,066,361
Caddo, Louisiana	6,047,857	4,888,365	4,652,047	4,379,614	3,345,157	2,617,094	2,282,948	2,243,704	1,574,060	2,394,818
Haynesville, Louisiana	2,754,300	2,222,804	1,802,721	1,746,089	1,908,244	1,579,798	1,412,719	1,372,225	1,275,204	1,225,049
Bosco, Louisiana	.....	.....	.....	.....	.....	.....	.....	1,014,144	6,356,368	4,621,671
Leesville, Louisiana	.....	.....	.....	.....	153,134	276,009	370,377	4,230,753	5,012,492	4,996,628
Iowa, Louisiana	.....	.....	.....	.....	17,312	466,164	3,370,962	5,311,703	7,249,167	6,648,058
Urania, Louisiana	3,621,650	2,656,050	2,120,465	1,905,492	1,478,549	1,267,008	914,664	1,116,093	1,091,132	1,013,378
Smackover, Arkansas	35,507,476	24,775,769	19,666,126	18,755,335	12,044,935	9,716,628	8,897,531	8,019,709	7,433,432	7,265,767
El Dorado-Champagnolle, Arkansas	2,188,033	5,617,219	4,485,371	2,986,026	2,276,413	1,765,143	1,451,817	1,407,664	1,689,943	1,769,435
Salt Creek, Wyoming	14,397,590	14,066,819	11,365,322	10,517,980	8,846,658	7,918,399	7,026,294	6,597,796	6,389,780	6,014,134
Hobbs, New Mexico	.....	34,934	740,165	9,459,319	14,596,714	11,768,252	11,210,908	12,437,853	11,062,508	9,043,343
Eunice, New Mexico	.....	.....	.....	.....	.....	347,413	265,290	905,276	3,259,362	8,140,177
Sunburst, Montana	4,313,388	3,209,574	2,323,406	1,940,515	1,519,935	1,194,786	1,187,778	1,639,908	1,299,728	1,525,593
Bradford-Allegany, Pa.-N. Y.	7,314,500	8,418,000	11,274,000	12,249,065	11,419,000	12,682,124	12,500,513	13,791,617	16,376,668	16,352,000

All Crude Production Records for Year Exceeded in 1936

By JAMES McINTYRE

Increases in production in 14 states in 1936, amounting to 103,219,027 bbls. over their 1935 record, were offset only 4,726,083 bbls. in other producing states giving the United States a net increase of 98,492,944 bbls. over the previous year. Total production in 1936 was 1,089,113,699 bbls., a new record as against 990,620,755 bbls. the year before.

Somewhat better prices for crude and a steadily rising demand for oil to meet the requirements of refiners were the causes for the increased production, and back of these reasons was the steadily increasing number of motor cars for pleasure and business use, increased number of buses and increased number of fuel oil users, industrial and domestic, and increase in diesel oil consumption.

Texas was responsible for the greatest increase in crude output with 32,803,703 bbls. more oil than it produced in 1935; but Louisiana, where proration was most generously administered by state officials, had by far the greatest percentage increase. The Rodessa field and several pools in Coastal Louisiana were chiefly responsible for a 30,520,390-bbl. increase in that state. Oklahoma accounted for 18,283,831 bbls. of the added production of the country.

The 15 largest producing pools in 1936 and their total production were as follows:

	Barrels
Santa Fe Springs, California	16,460,142
Ventura Avenue, California	12,609,878
Huntington Beach, California	13,247,499
Long Beach, California	24,994,299
East Texas	164,788,873
Conroe, Texas	14,909,126
Yates, Texas	13,197,907
Rodessa, Louisiana-Texas	22,066,361
Seminole, Oklahoma	26,179,757
Van, Texas	13,338,524
Oklahoma City, Oklahoma	51,231,766
Fitts, Oklahoma	19,908,495
Bradford, Pennsylvania-New York	13,151,050
Kettleman Hills, California	29,295,959
Midway Sunset, California	21,481,621
Total 15 fields	456,861,257
All other fields	632,252,442
Total United States	1,089,113,699

The Hobbs, New Mexico, and Pampa, Texas, fields dropped out of the first 15 list in 1936 and their places were taken by Rodessa, in Louisiana and Texas, and Fitts, Oklahoma. The first 15 pools in 1935 produced a total of 452,237,737 bbls., while the first 15 in 1936 accounted for 456,861,257 bbls.

The first 15 fields in 1935 produced minus 46 per cent of all the production of the year, but in 1936 the leading 15 produced only minus 42 per cent of the year's total.

This is significant of a large production increase in a considerable number of fields in several states, which, while none of them is large enough to get into the royal 15 class, combine to make a very substantial contribution to the large increase in the country's production.

A number of pools were added last year to the major pool class in production (pools that averaged 10,000 bbls. per day over the period of a year). To have got into that class required a production of at least 3,660,000 bbls. for the year. Caillou Island, in Coastal Louisiana, produced 5,232,961 bbls.; Gillis, Coastal Louisiana, 5,653,087 bbls.; Saxet, in lower Texas Gulf Coast region, 4,585,637 bbls.; Loma Novia, also in lower Coastal region of Texas, 4,620,409 bbls.; Eunice New Mexico, 8,140,077 bbls.; Edmond, Oklahoma, 4,370,495 bbls., and Rodessa, Texas-Louisiana, 22,066,361.

At the close of 1936, 343,477 active oil wells were listed in the United States, an increase of 10,671 over the corresponding period in 1935, but notwithstanding the increase in wells and the increase of 98,492,944 bbls. in production the average production per well was raised only a fraction of a barrel, the average in 1936 having been 8.66 bbls. per well per day as against 8.15 bbls. per well in 1935.

UPS AND DOWNS OF PRODUCTION

Increases in Production in 1936

	Barrels
California	6,924,196
Oklahoma	18,283,831
Texas	32,803,703
Kansas	3,720,044
Wyoming	1,031,074
Louisiana	30,520,390
Illinois	88,000
Pennsylvania	1,142,000
Kentucky	314,000
Montana	1,431,433
New York	385,000
Colorado	57,218
New Mexico	6,493,138
Indiana	25,000
Total	103,219,027

Decreases in Production in 1936

Michigan	3,812,842
Arkansas	441,241
Ohio	284,000
West Virginia	145,000
Miscellaneous	43,000
Total	4,726,083
Net increase in United States	98,492,944

Production in the United States, 1927 to 1936, Inclusive

	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	No. active wells Dec. 31, 1936	Dly. av. prod. per well (bbls.)
California	230,751,463	231,892,597	292,036,911	228,091,899	188,829,032	178,127,794	173,125,420	175,508,566	207,832,131	214,756,327	12,230	47.97
Oklahoma	276,022,024	247,500,851	252,229,474	216,114,591	175,703,848	149,487,234	178,356,449	178,652,012	182,596,874	200,880,705	55,334	9.92
Texas	220,030,512	255,354,357	298,713,694	292,392,102	328,608,575	314,378,759	401,808,452	378,233,017	391,592,331	424,396,034	68,175	17.01
Arkansas	40,411,375	32,137,934	25,443,570	20,114,782	15,626,407	12,529,870	11,449,635	11,359,458	11,138,586	10,697,345	2,636	11.09
Kansas	41,943,577	38,150,878	40,658,170	42,123,347	38,956,338	35,339,206	41,305,768	45,754,117	53,364,446	57,084,490	21,267	7.33
Wyoming	20,983,675	21,403,460	19,071,618	17,740,017	14,692,272	12,994,748	11,095,729	12,488,995	13,237,765	14,268,839	3,725	10.46
Louisiana	24,330,954	22,862,564	21,137,263	23,881,270	22,856,536	22,467,889	25,629,655	32,478,282	50,286,626	80,807,016	5,074	43.51
Illinois	6,873,000	6,475,000	6,356,500	5,651,000	4,717,000	4,801,000	4,252,000	4,472,000	4,351,000	4,439,000	13,400	0.91
Pennsylvania	9,642,000	9,914,000	11,804,800	12,918,000	11,862,000	12,395,000	12,677,000	14,572,000	15,899,000	17,041,000	80,512	0.48
Ohio	7,542,500	7,105,000	6,730,200	6,483,000	5,318,000	4,606,000	4,296,000	4,299,000	4,121,000	3,837,000	33,200	0.32
Kentucky	6,590,000	7,350,000	7,821,400	7,462,000	6,490,000	6,322,000	4,621,000	4,868,000	5,324,000	5,638,000	13,700	1.12
W. Virginia	6,033,000	5,746,000	5,608,600	5,111,000	4,477,000	3,907,000	3,827,000	4,133,000	3,959,000	3,814,000	13,600	0.76
Montana	5,171,883	3,998,549	3,827,067	3,203,808	2,847,201	2,320,155	2,358,056	3,509,015	4,367,228	5,798,661	1,459	10.85
New York	2,237,000	2,579,000	3,345,600	3,854,000	3,395,000	4,524,000	3,153,000	3,814,000	4,241,000	4,626,000	14,640	0.86
Colorado	2,722,670	2,744,184	2,361,595	1,623,639	1,492,862	1,114,064	914,881	1,130,375	1,555,542	1,612,760	187	23.56
New Mexico	1,214,254	973,891	1,803,261	10,377,415	15,360,383	12,344,684	13,801,278	16,438,878	20,154,321	26,647,459	1,320	55.16
Indiana	852,500	1,054,000	905,800	900,000	831,000	806,000	732,000	816,000	767,000	792,000	1,510	1.46
Tennessee	62,200	50,000	20,000	20,000	7,000	5,000	7,000	11,000	.....	.....	.....	.....
Michigan	436,100	613,000	4,391,200	3,589,000	3,733,000	6,834,000	7,863,000	10,566,518	15,789,905	11,977,063	1,508	21.70
Miscellaneous	.....	.....	.....	.....	.....	.....	.....	.....	43,000	.....	.....	.....
Total	903,850,687	897,995,265	1,004,266,723	901,740,870	845,803,454	785,304,403	901,273,323	903,104,233	990,620,755	1,089,113,699	343,477	8.66

Increase in Allowable Is Asked at Texas Hearing

By NEIL WILLIAMS

AUSTIN, Tex.—Urgent appeals to the Railroad Commission that Texas production be kept in line with the recommendations of the Bureau of Mines at least for 90 days were made by Charles F. Roeser of Fort Worth, president of the Independent Petroleum Association of America, at the statewide proration hearing here January 20.

In its market demand estimates for February, the Bureau of Mines recommended Texas production be held to 1,203,400 bbls. daily, 81,501 bbls. under the current daily production of 1,284,901 bbls., based on the state allowable. The bureau's estimate represents an increase of 27,400 bbls. over its January allocation.

Mr. Roeser warned the commission that possibly some of the unusual demand for crude may have been due to temporary labor troubles in Venezuela cutting off approximately 140,000 bbls. in daily imports. He said the industry is confronted with an extraordinary situation in which the large differential in stocks between summer and winter in previous years is being eliminated. This leveling off is what the industry wanted, but it is time for it to find out where it stands. He attributed increased gasoline stocks to refiners running more domestic crude than usual in the production of fuel oil, a situation intensified by reduction in imports from Venezuela.

Although these appeals were made for reduced allowables, nominations for crude totaled 1,506,151 bbls., 67,355 bbls. greater than asked for January and 302,751 bbls. over the Bureau of Mines figure. On the six months' forecast there will be a steady increase in crude requirements of purchasing companies each month with July estimated at 1,552,811 bbls.

Special requests for increased allowables were made for Talco: Sand Hills, Crane County; Keystone, Keys and Sayre, Winkler County: Fuhrman, Andrews County; Goldsmith and Cummins, Ector County; Estes and South Ward, Ward County; Conroe; Hastings, Brazoria and Galveston counties; Anahuac; Thompson, Fort Bend County; Tomball; Tomoconnor and Greta, Refugio County; and Duval County.

The commission reiterated that if there is a bona fide market demand, and if filling of the demand will not take an already existing market from any other field in the state, or create waste in production, increased allowables will be granted.

Additional increases were asked for the Panhandle, granted a 10,000-bbl. increase in January. The increase raised the average per well to a little less than 23 bbls. Oil, it was said, continues to be drawn from storage at a rapid rate. Danciger Oil & Refining Co. renewed its request for additional oil for its Pampa refinery.

Due to inability to obtain sufficient crude in Texas, Tide Water Crude Oil Purchasing Co. has been forced to make contracts and buy crude on the open market in coastal Louisiana, George Goad testified in a request for increased allowables at Conroe. It was brought out that purchasing companies have been nominating much more oil from Conroe than they had been allowed to run, that there has been an urgent demand for the additional oil which could be produced without waste.

V. E. Cottingham, director of production for the commission, testified the average bottom-hole pressure in the East Texas field had risen from 1,175.26 pounds on December 12, to 1,176.47 pounds on January 12, an increase of 1.21 pounds. In that period the field produced 13,864,771 bbls., giving the field a pressure increase of .087 pounds per million barrels produced. Mr. Cottingham recommended the allowable factor of 2.32 per cent of the hourly per well potential be continued. He explained that if the pressure continues to rise during February, an increase in the allowable factor for March would be in line with efficient production practices. From February 6, 1934, to January 12, 1936, the average bottom-hole pressure dropped only 108.53 pounds. In that period 471,405,709 bbls. were produced, making an average drop of .230 pounds per million barrels.

The hearing was presided over by Judge C. V. Terrell, newly elected chairman, and Col. E. O. Thompson, retiring chairman. With them sat Laten Stanberry, chief supervisor of the oil and gas division. Lon Smith, third commissioner, was not present.

HANDING OVER THE GAVEL—Col. E. O. Thompson, retiring chairman, makes way for Judge C. V. Terrell, new presiding officer, Texas Railroad Commission

Record Flight Gasoline

The gasoline used by Howard Hughes during his record seven and one-half hour transcontinental flight met the following specifications:

The unleaded base stock had a color of 21 as a minimum; copper dish corrosion—negative; maximum gum content by accelerated aging test—not over 10 mg.; not over .1 per cent sulfur; maximum freezing point—not over minus 76° F.; vapor pressure at 100°—not over 7 pounds; octane number—100 or above; Ethyl lead content—3 cc.; 10 per cent evaporated at 167° F. maximum; 50 per cent at 212° F. maximum; 90 per cent at 275° F. maximum; residue—2 per cent maximum.

OBITUARIES

J. S. CARVER, 65, pioneer Bristow, Okla., resident, died January 21 from a sudden heart attack. He had been an employe of Ohio Oil Co. for a number of years and was retired January 1.

DAVID C. STEWART, former vice president of Magnolia Petroleum Co. and Magnolia Pipe Line Co., died at his home in Dallas, Tex., January 23. He was born in Franklin, Pa., in 1864. His father was an oil-field worker and at 20 David was working as a connection man on a pipe line gang for United Pipe Line Co., a division of National Transit Co. In 1893 he served as gauger for Eureka Pipe Line Co. and Buckeye Pipe Line Co., becoming district foreman for Buckeye in 1896. Four years later he was serving as assistant superintendent of the Macksburg division at Marietta, Ohio, and in 1902 supervised construction by the Cumberland Pipe Line Co. of a line from Somerset, Ky., to the West Virginia line. The following year he was sent west for the Prairie Oil & Gas Co. to build the first line from Humboldt, Kans., to Kansas City, Mo., and later the line to Chicago. In 1904 he was made assistant general superintendent of the Prairie Pipe Line Co., directing work in Oklahoma and Kansas. He became general superintendent of Oklahoma Pipe Line Co. in 1909 and in 1911 manager of all the lines of Magnolia Petroleum Co. As an interlude in a busy life, when Standard of New York sent a crew of 16 men to Shensi Province, China, to prospect for oil, Mr. Stewart was in charge of the expedition.

JOHN A. LENERTZ, 48, died in Research Hospital at Kansas City, January 25, where he had been suffering from a heart ailment. He was manager of the state tax department of the Empire companies since July, 1921. He joined the valuation department of the Empire in October, 1918, and the following spring was moved into the tax department.

Placing a 1,000-pound river clamp using side winch

Lowering 12-inch coated pipe into ditch in Nebraska

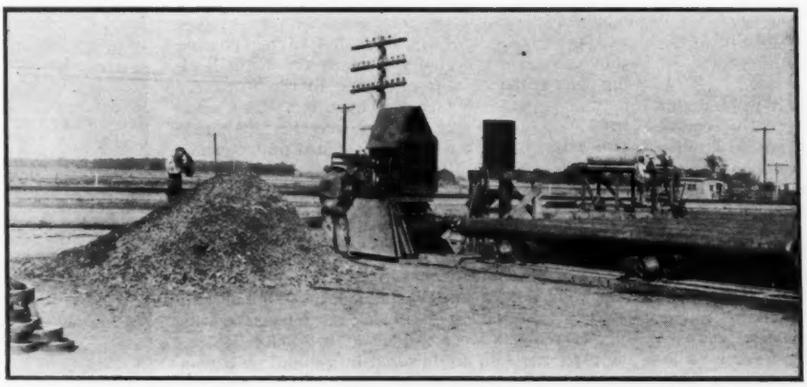
Cleaning Yard Design Avoids Lost Motion in Handling Pipe

By L. G. E. BIGNELL

Recently oil previously started at the west end of the reconditioned 675 miles of 10- and 12-inch pipe line of the Stanolind Pipe Line Co. between Clayton tank farm, Wyoming, and Freeman, Mo., reached the latter station. This marked the completion of work planned for more than two years and actually begun in June, 1936, when the system was returned to Stanolind Pipe Line Co. by the two companies who had used it for the transportation of gas in Wyoming, Nebraska and Kansas. When it was decided that the line should again be used to handle oil stored in the tanks near Clayton, Wyo., more than a year's notice was given to the gas companies of this intention.

During the year prior to June, 1936, the engineering and operating departments of Stanolind Pipe Line Co. considered several plans for reconditioning this system. As originally built the line was rated at 40,000 bbls. daily capacity. It had 16 pump stations and the delivery end was nearly a mile lower than the intake end at the Wyoming tank farm. The pumping equipment from 14 of the original 16 stations had been removed and shipped to other points on the company's system. As now operated the line has a daily capacity of from 8,000 bbls. in the winter to about 15,000 bbls. in the summer with three regular stations, machinery having been re-installed in one from which it had been removed. These stations are Welch, at the Clayton tank farm, Beck, near North Platte, Neb., and Washington, near Washington, Kans.

During the winter months when the oil is cold it is necessary to use additional booster equipment at Glendo and Fort Laramie, Wyo. At Oshkosh, Nebr., station portable pump units were temporarily used to handle the thick oil while the equipment installed at Glendo and Fort Laramie stations is more permanent apparatus but used only during very cold weather. This condition has been brought about by the thickening of this oil, which has been in storage for several years, when the temperature drops below freezing. In general the line follows the valley of the North Platte River and in some places the pipe is actually laid close enough to the river to be in an area at times filled with surface water. At Welch station the pump pressures have been as high as 990 pounds in starting this heavy oil and 800 to 900 pounds in keeping it moving because the line passes over high points in the section to Fort Laramie. It then starts on a down grade which generally continues as far east as Washington where an uphill grade is again experienced. Sometimes this line is referred to as a "gravity" system but all 16 stations would be needed to handle oil through it at its original rated capacity. It is now planned to use the line at only a fraction of such capacity, as pointed out.



Partial view of modern pipe reconditioning yard at Darr, Nebr.

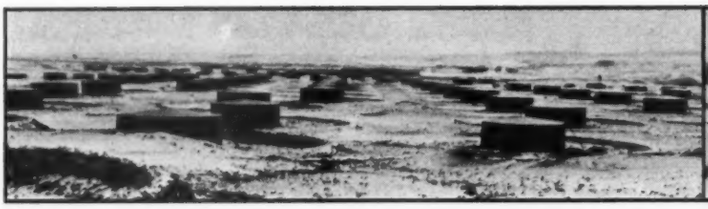
At Fort Lamarie station oil from the Lance Creek field is mixed with the oil from the Clayton tank farm. It was expected that mixing this light Sundance oil with the heavier Salt Creek oil would decrease the viscosity and permit the oil to flow more freely and it has so worked out. Pressure gradient studies made by the engineering department of the operating company have been helpful in meeting the various practical problems encountered.

The work of reconditioning the pipe line was difficult to estimate in advance of actual examination of the local conditions. In general the engineering department knew where hot-spots were most likely to occur. For instance, where the pipe was laid along the course of the North Platte River close enough to the river channel to be in ground alternately wet and dry corrosion would be rapid. At highway crossings it was also known the probabilities of corrosion were high because the roadside ditches carried drainage waters after storms and then were dry over long periods alternately moistening and drying the pipe.

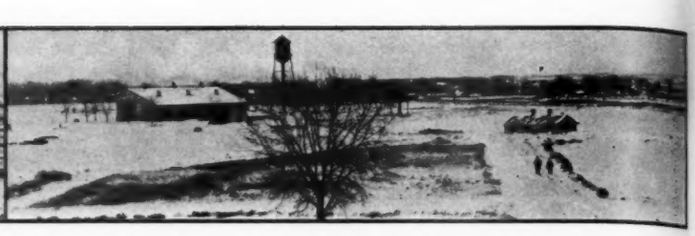
One method used in locating probable corrosion areas was to trace the growth of the so-called "salt" grass of the region. This grass grows in tufts and is peculiar to regions where alkali soil predominates. Not all indigenous vegetation is found in these areas of alkali soil and it has formed a helpful marker for sections of the line where corrosion has been excessive.

To start this work it was necessary to first trace the actual ditch by the use of an instrument combining a radio receiving set and contact points of metal. The metal points were thrust into the soil where it was suspected the pipe was buried and an electric current passed through wires connecting the points with the receiving set. When the pipe was located the instrument recorded the fact and stakes were driven over the ditch.

The locating crew was followed by a ditcher. The ditch was opened to the top of the pipe by this machine and then each coupling was scraped clean by men in the ditch so that the coupling



Some of the 55,000-bbl. tanks in Clayton, Wyo., tank farm



Mitchell, Nebr., pipe line station of Stanolind Pipe Line Co.

could be split with the cutting flame of an acetylene torch.

When the couplings were split the end of one joint of pipe was raised by a winch mounted upon a tractor supplied with a heavy boom or crane. The joint of pipe was lifted out of the ditch and then lowered to skids placed across the ditch. When in this position the tractor moved forward and again the winch picked up the pipe and lifted it entirely out of the ditch and lowered it so that it lay across the top of the ditch. From this position it was later picked up by the transportation crew. As this pipe was taken from the ditch the coupling was left on one end of each joint of pipe.

To gather these 20-foot joints of pipe and deliver them to the reconditioning plants established along the right of way at convenient intervals the contractors used long cranes mounted on the back end of tractors. When the truck was in position alongside the joint of pipe across the ditch the crane tractor backed up to it and dropped a line to the man at the pipe. He hooked a line into each end of the joint of pipe and it was then hoisted to its position on the bed of the truck.

ATTENTION TO DETAILS

The reconditioning stations were very carefully planned. Great attention was given to every detail and these plants were moved from time to time along the right of way so that the haul from and to the ditch was never over 7 or 8 miles in either direction. A minimum haul of 1½ to 2 miles was necessary in some rough country.

As this pipe line parallels the Union Pacific Railroad and the Lincoln Highway for about 100 miles of its distance it was found possible to locate some of the reconditioning plants upon the railroad's right of way. The layout of racks, electric generators for welding equipment, cleaning machines, office, water stations and storage yards were all very carefully planned. A joint of pipe never had to travel in but one direction after it left the ditch until it was reconditioned and ready to be again returned to the right of way for relaying.

After the pipe was inspected in a preliminary way, it was found necessary to actually remove from the ditch and recondition about 175 miles out of the 675-mile system. There was one marked difference in this project as compared with other pipe line reconditioning jobs. Very nearly 90 per cent of the pipe removed from the ditch was found to be in bad condition as compared with from 10 to 15 per cent of bad pipe taken from other pipe lines. In other words on this line where the pipe had to be examined out of the ditch it was found to be bad in the majority of instances, whereas on other jobs it had been found that from 85 to 90 per cent of the pipe examined could be graded as Class A reconditioned pipe after the work of reclaiming it was completed.

This fact required the work at each reconditioning station to be done in a very thorough manner. Several inspections were made of the pipe as it passed through the pipe yards and it is reported only a very small per cent of the pipe handled was actually discarded as worthless. In some instances pipe lengths had to be cut in two and bad sections varying from 12 inches to several feet entirely removed. But the ends of such sections were welded together to make short joints and in this manner a considerable proportion of the pipe was saved.

The pipe cleaning and reconditioning yards were all laid out in exactly the same manner. In fact the units making up these yards were actually moved from place to place as the work advanced. The site selected usually sloped so the pipe racks could be so placed as to permit the pipe to be rolled easily. The pipe as removed from the ditch was first delivered to an unloading rack. If there were any bent joints they were straightened. All this pipe then rolled to an inspector and he made two general classifications at the end of the rack. If there were any foreign pieces of material attached to the joint of pipe that piece of pipe was rolled onto a rack where half-soles, saddles, collars, old connections or other obstructions were removed. If they were left on the pipe the joint would not pass through the cleaning machine. Pipe without obstructions attached to it was passed straight to the cleaning machine. This stationary pipe cleaner powered with gasoline engine removed all former coating, paper wrapping and dirt from each joint. It was found necessary to wet the pipe as it was fed into the machine to keep the asphalt cool, otherwise the asphalt would collect in the cutters and the cleaning machine could not have been operated. To supply the water for this purpose a well was dug at each pipe yard and equipped with a small power pump which pumped the water into a small elevated tank, usually made from an old truck tank.

The split coupling was left attached to each joint of pipe and removed just before the pipe was cleaned in the yard. After the pipe had been cleaned, the ends were beveled and the pipe thoroughly inspected for pits and holes. These corrosion spots were filled with metal using electric welding for this work. To clean the pits of the products of corrosion and dirt the flame of an acetylene torch was used. After the corroded spot was heated it was an easy matter to knock out the rusted part of the pipe by a few hammer blows.

After the pipe was patched the welding metal was ground down to the level of the pipe surface and the weld carefully inspected. After passing this inspection the pipe was ready for again loading on the truck and returning to the ditch for it was beveled during the handling. The same trucks which brought the pipe into the pipe yards also returned with a load of cleaned and reconditioned pipe to the ditch. This efficient handling of this material enabled the reconditioning of as much as 7,000 feet of 10- or 12-inch pipe daily.

CLEANING PROCESS

After the pipe was returned to the ditch it was welded into lengths of 120 to 200 feet and lowered into the ditch in long sections after the shorter sections were welded at bell-holes. Before the pipe was actually lowered into the ditch it was again cleaned, primed and coated. Machines were used for each operation and this work proceeded at rapid rate with the crews handling from 6,000 to 8,000 feet of pipe per day. The work in the pipe reconditioning yards proceeded day and night in order that the pipe line welders might have sufficient pipe to weld each daylight period.

This reconditioning job was handled most expeditiously and economically and carried through on scheduled time and marks a definite step forward in this kind of pipe line work. Several rivers and good-sized streams were crossed and connections into and out of the pipe line stations were simplified. Because this line is planned to handle not to exceed 12,000 bbls. of crude daily out of Wyoming and for a little period only economy in putting the system back into good order had to be carefully practiced. Checks since the work has been completed indicate a very considerable saving has been made over what might have been spent if either new pipe had been purchased to relay the hot spots or reconditioned pipe had been shipped to the right of way from distant points where it might have been available.

Arkansas Seeks Uniform Tax

The legislature of Arkansas, now in session, recognizing the great loss of revenue suffered by that state along its borders through the imposition of its 6½-cent gasoline tax, has sent a resolution to the president of the United States, senate, and house of representatives, urging legislation "requiring the federal government to assume the bonded highway indebtedness of this and other states and all other obligations to the payment of which gasoline and truck and automobile taxes are pledged and to enact legislation providing for a uniform gasoline tax and truck and automobile license taxes for the United States."

House Bill 147 of the general assembly of Arkansas is now under consideration which would reduce the present 6½-cent per gallon gasoline tax in all border or state line communities to conform with the tax assessed by adjoining states, thereby preventing the great loss in revenue occasioned by the excessive state tax in Arkansas.

TRANSFERRED BY TEXACO

JAMES A. BERMINGHAM

James A. Bermingham has been transferred from Los Angeles, where he was in charge of production for Texas Co. of California, to Texas to have charge of the Houston division of the company's production department. He had previously served as assistant manager of the Fort Worth division and as manager of the Rocky Mountain district.

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"Safeguard" Automatic Liquid Level Gage
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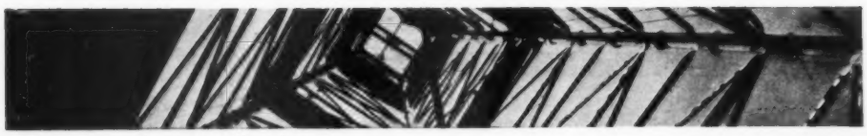

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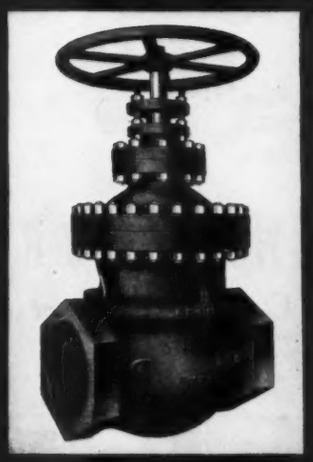
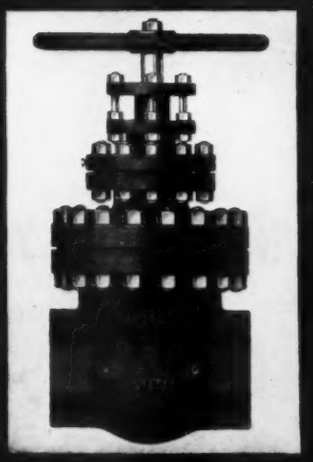




Fuel Oil Tax and Pollution Bill Are Introduced in Congress

By HENRY D. RALPH

WASHINGTON, D. C., Jan. 25.—With notice from President Roosevelt that the New Deal will carry on its fight to control economic forces and aid underprivileged citizens, congress buckled down today for its first week of real work and routine of the session.

To business men the significance of the president's inaugural address is not any specific passage but the general tone of the message, its implication that the administration has no intention of relaxing its policy of interference in business, of regulation of economic conditions, and of fostering wider distribution of the national income. The concept of planned economy is not to be abandoned now that the depression is abating but will be continued for the purpose of preventing future depressions and of demonstrating that democracy can improve conditions.

The inaugural, in effect, served notice on business it may expect continued high federal taxes to permit the government to do things for the less fortunate, legislation tending to shorten working hours and to increase wages in the lower brackets, federal aid to housing projects in cities and to improve farm incomes and living conditions, control of price levels, interest rates and credit conditions, and more regulation of finance and of general business and industrial policies.

FUEL OIL TAX

A federal excise tax on fuel oil, ostensibly to promote conservation but obviously to help the coal industry, is proposed in a bill (H.R. 3,134) introduced by Representative Patrick J. Boland of Pennsylvania. The bill would impose a tax of 1 cent per gallon on the sale of fuel oil for the generation of heat or power but not when used in an internal combustion engine. Fuel oil would include crude petroleum or any derivative suitable for use as a fuel but not kerosene, gasoline, benzol, benzene, naphtha, or gas oil. The tax on imported crude petroleum and fuel oil would be increased to 1½ cents per gallon in place of the present tax of one-half cent, but the increase would not apply to crude petroleum imported for refining purposes. Representative Boland, who comes from the anthracite town of Scranton, says he will push the bill vigorously before the ways and means committee, but observers do not anticipate its passage by congress.

GOVERNMENT GASOLINE PURCHASES

The procurement division of the treasury, which buys gasoline for most of the government departments with the exception of the army and navy, is considering a plan for bulk purchases of gasoline to be delivered to government automobiles in small lots by filling stations throughout the country. The plan is still tentative but in general it would call for rather large "open" contracts with a considerable number of refiners. The driver of a government car, or a government employe traveling on official business, could pull into any filling station carrying the gasoline of one of these refiners, whether or not company-owned, and have his tank filled without paying cash. He would display an identification card and sign a voucher, one copy of which he would turn in with his expense account and one copy leave with the filling station operator. The retailer would collect from the tank-wagon driver or agent of the refiner, who in turn would collect from the government periodically. Such a plan would not only simplify matters for government employes in the field and permit independent filling station operators to get a share of the government business, but it would also permit the government to get retail service at wholesale prices. Since the attorney general has ruled that the Robinson-Patman price discrimination law does not apply to government purchases, refiners can make contracts with the government at prices much lower than they sell to retailers or even jobbers, and presumably this low price per gallon would apply to filling station sales made in the proposed manner. The plan, however, is still in the discussion stage, and may be modified considerably before it is put into effect.

WATER POLLUTION

Another bill for federal control of water pollution has been introduced. The latest draft is by Representative Joseph L. Pfeifer of New York (H.R. 3,419), and is somewhat similar to the two pollution bills Senator Lonergan of Connecticut introduced earlier. It would amend the oil pollution act of 1924 by prohibiting depositing oil sludge or waste where it would drain into a navigable stream by ordinary floods or other conditions which could be anticipated, but would not go so far as the Lonergan bill in including extraordinary conditions which might carry refuse into streams. This bill would define refuse as including any kind of waste, oil, oil sludge, and many other kinds of industrial wastes. The Pfeifer bill would create a federal antipollution board to set standards for stream purity, to consist of the secretary of war plus three members appointed by the president, whereas the Lonergan proposal is for a board containing a larger number of federal officials ex officio.

TAX REVISION

Pressure continues to grow for modifications in the federal income tax structure, particularly sections dealing with capital gains and losses and undistributed corporation earnings. The appointment of Roswell Magill as undersecretary of the treasury suggests the treasury may be willing to accept certain modifications in both taxes. Doctor Magill has publicly criticized the operation of these two taxes and his opinion is expected to carry much weight. Senator William H. King of Utah has introduced a bill to modify the corporation earnings tax by giving credit for earnings used in the discharge of debts contracted before April 30, 1936, and also for expenditures for plant improvement. The administration undoubtedly will oppose the latter change but may be willing to ease the tax burden on debt-ridden corporations. Any such legislation, however, will have to originate in the house.

RECIPROCAL AGREEMENTS

The first big job tackled by congress following the inaugural ceremonies was the president's request for extension of the reciprocal trade agreements program which would expire in June. The state department has concluded tariff bargains with 15 countries, reducing rates of duty on many commodities in return for duty concessions for American exports. There is little doubt congress will authorize continuance of the program in substantially its present form. None of the 15 agreements concluded has made any reference to imports of petroleum or its products, but some have included important duty concessions for American oil products imported into foreign countries.

STRIKE SITUATION

The principal topic of conversation in Washington has been the strike situation. The president does not want to set the precedent for intervening personally in every strike which comes along, and he feels that existing legal machinery for settling labor disputes should be employed to the limit before they are brought to the White House.

ETHYL VICE PRESIDENT

J. COARD TAYLOR

J. Coard Taylor has been elected vice president of the Ethyl Gasoline Corp., it is announced by President E. W. Webb. Mr. Taylor has been general sales manager since 1929, when he succeeded Archibald M. Maxwell, who resigned to become vice president of the Standard Oil Co. of Ohio. He is 36 years old and joined the Ethyl organization in 1926 as its Canadian representative at Toronto. Previously, for two years, he was connected with Imperial Oil, Ltd., engaged chiefly in refinery experimental and research problems at Montreal following service in the sales department.

After graduating from Princeton in 1923 he entered the Standard Oil Co. of New Jersey training school at Bayway, N. J., and later was with Humble Oil & Refining Co. in Corsicana. He moved to New York as assistant sales manager of Ethyl Corp. in 1927. He will continue as head of the Ethyl sales division.

Some sad story

SOME salesmen sold so successfully, sales surpassed supply Salesmen, subsequently sacked, seek selling situations—so sad

The salesmen worked for a refiner and it was Dubbscracked gasoline they sold so successfully—they couldn't help it

They sold all they had and all the refinery could make for months ahead There was nothing more to sell and the boss had to let them go

The moral of this is not to fire your salesmen but to make more Dubbscracked gasoline for them to sell

That is what this refiner is going to do—he is Dubbling his Dubbscracking capacity

Dubbscracked gasoline sales seem sure to swell stupendously

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

BAR ASSOCIATION ENDORSES CONNALLY LAW AND COMPACT

The recommendations of the mineral section, American Bar Association, adopted by the Association at Columbus, Ohio, January 27, endorsing reenactment of the Connally "hot" oil act for two years and the continuance of existing legislation relating to the Interstate Oil Compact for two years, were as follows:

"The constitutionality of these acts has not been questioned, and experience has demonstrated they have been effective aids in the conservation of oil and gas. Both measures were adopted, in the first instance, with little or no opposition, and it is believed a similar general unanimity of well-informed opinion in their favor exists today.

"After careful study and investigation by an appropriate committee and by its council, the section of mineral law of the American Bar Association feels very strongly that each of these measures should be continued in force for an additional period of two years, and therefore unqualifiedly recommends that congress reenacts, for two years, the Connally bill, and approves a two-year extension of the Interstate Oil Compact; and that the legislatures of the oil and gas producing states, by appropriate state law, become signatory members of said compact."

Chas. I. Francis is chairman of the section of mineral law and Peter Q. Nyce secretary. P. C. Spencer was chairman of the committee on conservation of mineral resources.

JERSEY STANDARD CLUB

The fifteenth annual meeting of the Jersey Standard Club, (Standard Oil Co. of New Jersey employes) held at the Waldorf Astoria January 22 was attended by 800 men and women. Nelson and Winthrop Rockefeller, sons of John D. Rockefeller, Jr., and Ralph W. Gallagher, director of Standard of New Jersey, were speakers.

Winthrop Rockefeller related his experiences in the Texas fields. He told of warm affection for the Humble Oil & Refining Co. personnel and declared he was reluctant to leave the fields.

Mr. Gallagher reviewed the history of natural gas and the company's participation in this phase of the industry.

The club's first meeting was held 15 years ago in a small downtown restaurant at which 45 employes were guests. Frederick B. Deane is president.

EMPIRE TO MOVE LAND OFFICES

FORT WORTH, Tex.—Early removal of the West Texas land and geological departments from San Angelo to Odessa, Tex., has been announced by the Empire Gas & Fuel Co. The company has purchased 17 acres of land adjacent to the west city limits of Odessa for occupancy of the new headquarters. Plans call for the immediate construction of an office building and five residences.

RODESSA ALLOWABLE CUT

The state department of conservation has set the daily allowable of Louisiana for February at 235,700 bbls., a reduction of 4,950 bbls. from the January allowable. The decrease is due almost entirely to a cut of 12,500 bbls. in the Rodessa allowable, which has been set at 50,000 bbls. daily for February.

NO CHANGE IN MANAGEMENT

There will be no change in the management or officers following a reorganization of the capital structure of the Parkersburg Rig & Reel Co., of Parkersburg, W. Va. The new structure includes the issue of both preferred and common stock, the latter being sold to four investment trusts, the Chicago Corp. acquiring one-half, Adams Express Co. one-fourth and Tri-Continental Corp. and Selected Industries, Inc., one-eighth each.

THE MARKETS*

CRUDE OIL: ***At the same time that production reaches a new high, figures from the Bureau of Mines reveal a reversal in the trend of stocks. The rise in stocks recorded in December is more than counterbalanced by withdrawals in January. No changes in posted prices, but efforts on the part of buyers to obtain connections are increasing.***

REFINERY: ***Kerosene outstandingly strong, with supplies scarcer. Wintry weather is preserving a firm market for the fuel oils. Gasoline generally dull, but prices holding fairly well except for third-grade material, in which concessions are reported.***

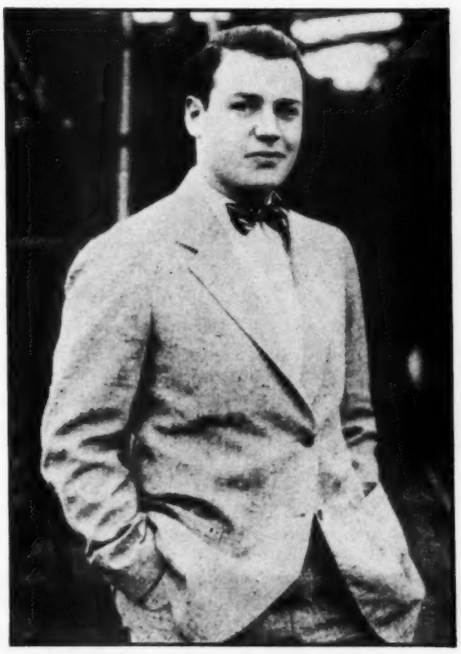
TANK-WAGON AND SERVICE STATION: ***Standard of Indiana and Standard of Nebraska advanced kerosene .3 cent throughout their territories. Atlantic Refining advanced kerosene a half-cent and also advanced gasoline in Massachusetts, Rhode Island and Connecticut, at some points .2 cent and in others .3 cent.***

FINANCIAL: ***Oil shares were among the strongest in the week's trading. Average for 30 representative stocks for week ending January 23: High, 43.25; low, 41.27; close, 42.94. Week ending January 16: High, 42.98; low, 41.23; close, 42.15.***

*Detailed information in Market Section.

WINTHROP ROCKEFELLER ENJOYS HIS OIL COUNTRY EXPERIENCE

NEW YORK.—Feeling that his practical experience and personal contact with the operations end of the oil industry is far short of adequate, Winthrop Rockefeller, first grandson of John D. Rockefeller to seek actual experience in the fields and refineries, left New York January 29 for California. On the Pacific Coast, the 24-year-old son of John D. Rockefeller, Jr., will continue his quest of practical knowledge in the industry which he started three years ago in Texas.



WINTHROP ROCKEFELLER

While in Texas, Mr. Rockefeller gained practical experience in all phases of the industry working as a "roughneck" on heavy-duty Gulf Coast rotary rigs, in Humble's Baytown refinery and in the company's administrative offices in Houston.

In California, Mr. Rockefeller will continue his course of practical training, probably with Standard of California and General Petroleum Corp. Later he intends to extend his practical experience to South American operations, probably in Venezuela. (International News Photo.)

KANSAS OIL PRODUCERS URGE INCREASED PRICE

A Kansas state meeting of the Independent Petroleum Association of America held in Wichita, Kans., January 20, adopted a resolution urging all purchasers of crude to revise their price schedules to at least the level of those established on January 4 by Continental and Barnsdall companies.

The resolution states that present crude oil price schedules, in effect by a majority of the purchasing companies, do not permit an adequate return to the average producer; that failure of the producer to receive a reasonable profit on his operations is inimical to the best interests of the petroleum industry and to the welfare of the public and to other industries dependent upon the oil business for petroleum products; that such a condition, if permitted to continue, will result in decreased operations and the premature abandonment of many pumping wells which now are a most important factor in our crude oil supply and reserves; and that any material lessening of our available supply of crude oil is detrimental to the ultimate welfare of the nation.

ADVOCATE CRUDE RAISE

A meeting of oil operators and others interested in western Oklahoma was held in Ada January 22 at the Aldridge Hotel. It was called by Frank Buttram, vice president of the Independent Petroleum Association of America, and was addressed by H. B. Fell, executive vice president. The meeting unanimously adopted a resolution urging an increase in the price of crude.

OIL JUBILEE AT CAMDEN, ARK.

Col. T. H. Barton, president, Lion Oil Refining Co., of El Dorado, was principal speaker at the Camden Oil Jubilee, celebrating the discovery and development of the Ouachita-Nevada County oil field, which was attended by about 150 oil men from all parts of the Mid-Continent. Colonel Barton took as his topic "Arkansas and Oil," and predicted growing activity and important discoveries during 1937 for the South Arkansas territory.

NEWS NOTES

A bill introduced in the Texas house of representatives proposes oil exploration on state lands by students of a $250,000 petroleum engineering school to be created as a branch of Texas A. & M. College.

The Louisiana Department of Conservation has announced a formal hearing on the Sligo field of Bossier Parish will be held on February 12. Drilling regulations for development of the new oil-producing zone, and proration of wells, will be considered.

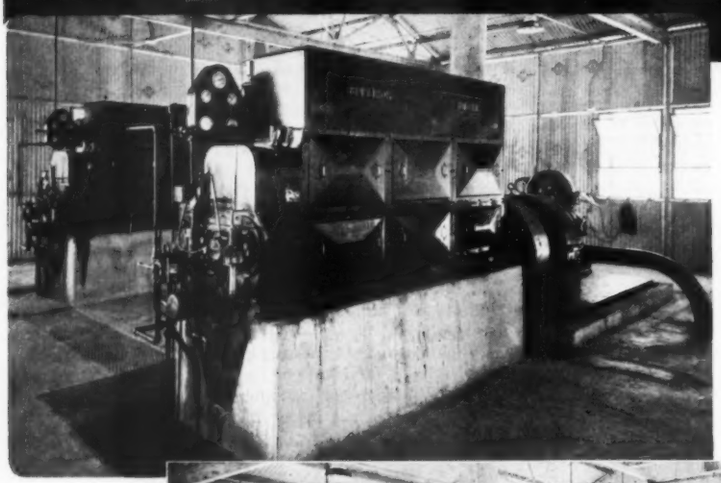
An increase in the gasoline tax in the District of Columbia from 2 cents to 4 cents is proposed by H. R. 1661, introduced by Congressman Carl E. Mapes of Michigan, who was a member of the Cole investigating committee.

A proposed bill before the Arkansas legislature would require licenses for operation, maintenance or establishment of retail stores, but specifically exempts gasoline filling stations and allied stores.

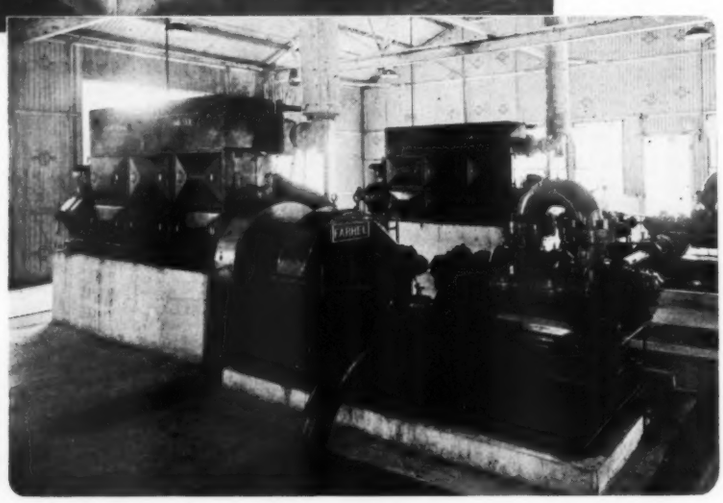
Pierce Petroleum Corp. directors plan to distribute to stockholders a substantial part of the 637,334 shares of Consolidated Oil Corp. common stock. A special meeting of stockholders has been called for February 15.

Practically all oil companies operating in the state of New York have submitted their answers to the joint legislative committee questionnaire circulated to obtain information on which to base proposed legislation. Chairman Ehrlich plans to submit data gathered by the group for Governor Lehman's consideration by the middle of February.

Superior DIESELS for Pipe Lines



Specially adapted for latest type of pipe line station, giving lowest overall pumping costs due to reduced investment and fixed charges, plus low operating costs; also most flexible to meet changing conditions. Superiors save in buildings, foundations, piping and accessories. Speeds suitable for gear drive to centrifugal pumps and adjustable through wide range under governor control.



Convertible. The benefits from using Superior Diesel construction for gas as well as oil, give additional incentive to standardize on these modern engines irrespective of fuel.

Lowest fuel and lubrication costs. Utmost reliability in exacting continuous service. Easy to handle and keep up.

Medium speed and slow speed up to 800 H. P. for centrifugal or plunger pumps. High speed engines for auxiliaries, portable pumping units, etc. Generator sets 10 K. W. to 500 K. W.

Six Superior Diesels on American Liberty Pipe Line in East Texas. 6-cylinder 9" x 12", 260 H. P. 600 R. P. M.

THE NATIONAL SUPPLY COMPANY OF DELAWARE

National

NSCO "REG. U. S. PAT. OFF."

Bureau of Mines Forecast 70,200 Barrels Higher

The Bureau of Mines forecast for February estimates the daily average production of crude oil to meet the demand at 3,068,600 bbls., or 70,200 bbls. higher than the estimate for January, but about 70,000 bbls. below present actual production.

During December daily average crude production was about 3,120,000 bbls. Stocks of domestic crude declined at the rate of close to 30,000 bbls. daily in December, indicating an apparent daily demand of about 3,150,000 bbls. The current rate of production is approximately 3,140,000 bbls. daily, with a probable further downward trend in stocks. With a proper seasonal decline in fuel oil stocks, coupled with a more conservative increase in gasoline stocks than is now taking place, runs to stills should show a decline in February from the present rate.

Domestic demand.—The domestic demand for motor fuel in February has been estimated as 30,500,000 bbls., or 12 per cent above the actual of February, 1936. In arriving at this comparison consideration was given to the extra day in 1936 as offset by decreased consumption because of inclement weather.

Exports.—Exports of motor fuel for February have been estimated as 2,200,000 bbls., 100,000 bbls. lower than the estimate for January but considerably higher than the actual of a year ago.

Stocks.—Stocks of finished and unfinished gasoline on November 30 amounted to 58,799,000 bbls., an increase of 1,137,000 bbls. According to the American Petroleum Institute, stocks were further increased during December by about 4,500,000 bbls., which would place gasoline stocks at about 63,300,000 bbls. on December 31, compared with 56,693,000 bbls. on the same date in 1935. For February an increase of 5,870,000 bbls. has been anticipated, materially lower than the actual of a year ago but in line with a reasonable seasonal build-up.

Gasoline production.—Benzol and direct sales and losses of natural gasoline have been estimated as 850,000 bbls., making the estimated production of gasoline 37,720,000 bbls., distributed among the districts as follows (thousands of barrels): East Coast, 5,770; Appalachian, 1,390; Indiana-Illinois, 6,400; Oklahoma, 2,480; Kansas-Missouri, 2,340; Texas Inland, 2,940; Texas Gulf, 8,050; Louisiana Gulf, 1,420; Arkansas-Louisiana Inland, 790; Rocky Mountain, 920; California, 5,220.

RECOMMENDATORY LEVELS OF REQUIRED CRUDE OIL PRODUCTION BY STATES*

(Daily averages in barrels)

State—	Forecast, Feb., 1937	Forecast, Jan., 1937	Actual production, Nov., 1936
Texas	1,203,400	1,176,000	1,160,400
Oklahoma	581,900	573,100	580,500
California	573,300	559,900	582,100
Louisiana	225,100	216,300	229,000
Kansas	170,000	165,600	166,400
New Mexico	51,600	79,800	83,100
Pennsylvania	49,400	48,200	47,200
Wyoming	41,900	40,100	47,200
Michigan	29,400	29,200	28,300
Arkansas	28,500	27,300	26,500
Kentucky	16,300	15,200	15,900
Montana	14,700	14,400	16,900
Illinois	12,700	12,800	12,100
New York	13,000	12,600	13,100
Ohio	10,500	11,000	9,500
West Virginia	10,200	10,200	9,600
Colorado	4,500	4,500	4,100
Indiana	2,200	2,200	2,000
Total	3,068,600	2,998,400	3,033,900

*The recommendations in this table have been calculated as the requirements for the months stated and are not intended to be calculations of daily average demand for the current year or for any period other than the months stated.

Runs to stills.—Natural gasoline consumption at refineries is estimated as 6.3 per cent of the total gasoline required, or 2,370,000 bbls., the decline of 1 per cent from the estimate of January being in accordance with the usual seasonal change. The contemplated yield of straightrun and cracked gasoline is 43.046 per cent, or slightly higher than for January. The application of the yield to the estimated straightrun and cracked production of 35,350,000 bbls. gives 82,120,000 bbls. as the crude required at refineries.

Imports.—Runs of foreign crude have been estimated as 2,700,000 bbls., compared with an estimate of 2,900,000 for January.

Exports, fuel and losses.—Exports of crude have been estimated as 3,700,000 bbls, "fuel and losses," as 2,800,000 bbls.

Required production.—The application of the usual methods to the total required production of crude oil gives accompanying breakdown by states.

Secrecy Oaths Are Defended in Madison Cases

MADISON, Wis.—Secrecy oaths taken by witnesses before two federal grand juries which investigated the oil industry here in 1936 were necessary and were not administered by compulsion, government attorneys insist in their answer to a petition by defendant companies in antitrust law indictments for release of witnesses from the oath.

The government also has filed its answer to defense petitions for suppression of documentary evidence presented to the grand jurors. Both petitions are scheduled for final hearing before U. S. District Judge Patrick T. Stone on Feb. 1.

The corporate defendants, contending the need for secrecy in the grand jury proceedings ended with return of the indictments and arrest of the defendants, have insisted that release of witnesses from the oath not to divulge their testimony is necessary in enabling them to prepare for trial. Many of the witnesses were "scared to death" by the oath and, while the government has pointed out that defense attorneys have the right of interviewing witnesses on material charges contained in the indictments, attorneys for the oil companies declare it has been impossible to get them "to talk at all."

The government's answer denies that witnesses were required to take the secrecy oath "under threat of punishment." The oaths were administered by the grand jury foremen pursuant to long practice, the prosecutors claim, and in conformance with a policy of law that proceedings before grand juries shall be carried on "in confidence and secrecy" for the protection of witnesses and jurors.

The oath not to divulge testimony was "peculiarly necessary and appropriate" in connection with the oil investigation, the answer says, "in view of the nature and scope of the investigation and the relationships between many of the witnesses," who were mostly executives and employes of oil companies.

The defendants' rights were not prejudiced by the oath, their preparations for trial were not obstructed, the government holds, and "defendant corporations are not entitled as a matter of law to inquire into the proceedings to determine whether there were any irregularities in the conduct of the grand jury investigations or by government counsel."

Moreover, the answer states, "release from the secrecy provisions of the oath may result in inconvenience and embarrassment and harrassment of numerous witnesses."

The answer to the petition for suppression of evidence denies the documents were impounded without acquiescence of the petitioners and declared the defendants have not taken advantage of orders issued by the court permitting them to reclaim the papers on condition they be returned intact preceding trial. The defendants had demanded unconditional return of the papers, great quantities of which were brought to the Madison federal building in cartons, boxes and bales.

Jacob France, president of Mid-Continent Petroleum Corp., was granted a continuance from February 1 until March 3 by Federal Judge Patrick T. Stone here Saturday for his arraignment on charges of conspiracy to violate the antitrust laws.

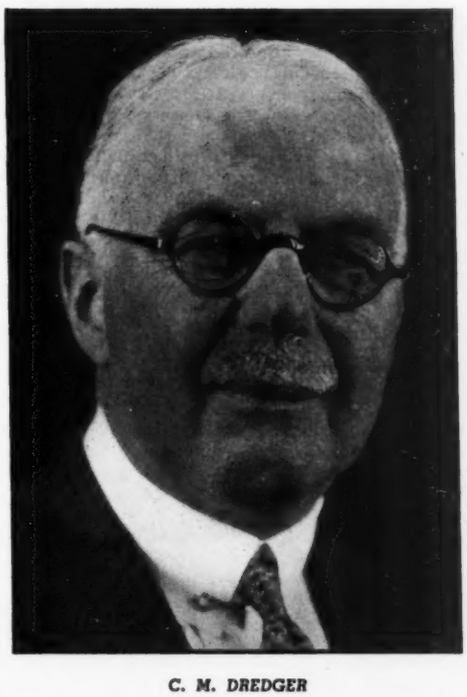
H. H. Thomas, Madison, and J. C. Denton, Tulsa, appearing on behalf of Mr. France, informed the court their client goes to Florida at this time every year to remain until the end of February. Mr. France did not fight removal proceedings, when a warrant was served upon him but posted bond before a United States commissioner for his appearance in Madison.

Judge Stone ordered his attorneys to file their contemplated demurrer on January 28 and to be prepared to argue it February 1. If the demurrer is overruled Mr. France will be required to appear here March 3 for arraignment.

Insistence upon unconditional return to the owners of all documentary evidence subpoenaed in the government's investigation was renewed last week by attorneys for 22 indicted companies.

C. M. DREDGER RETIRES

After 46 years of service with Socony-Vacuum Oil Co., Inc., Christian M. Dredger for 30 years manager of the statistical department, retired January 1. He entered the employ of the company in 1891, was made department manager in 1907, and is recognized as one of the foremost



C. M. DREDGER

statisticians and authorities in the petroleum industry. In addition to directing the foreign and domestic statistics of Socony-Vacuum, Mr. Dredger was also active in such departments as service, distribution and claims.

At the time of his retirement, about 125 associates tendered a testimonial dinner to him at the New York Athletic Club. A. J. McIntosh, who has been associated with Mr. Dredger in the statistical department for 25 years, was toastmaster. Other speakers included A. T. Roberts, assistant treasurer; R. S. Durkee, comptroller; W. H. Correa, general manager of the lubricating department, and A. D. Stewart of the statistical department.

Natural Gas News

Gas Drilling Pattern

MUSKEGON, Mich.—Michigan Public Utilities Commission has adopted an amendent to the regulations governing production of natural gas to provide for drilling one well to every 160 acres instead of 40 acres, the former spacing pattern.

The amendment was adopted on petition by West Michigan Consumers Co., of Muskegon, operator of a natural gas pipe line and distributing system serving about 25 major industries of Greater Muskegon. It won the approval of other operators at a hearing in Lansing.

Though the change recognizes a quarter section as unit for computing the gas to be withdrawn from any well, operators will be permitted to drill gas tests on 40-acre tracts, or less. However, under the new schedule it will be more advantageous to the operator to drill fewer wells and be permitted a greater percentage of open flow withdrawal.

The new rules are to become effective February 1, 1937. The West Michigan company already has changed to the new spacing pattern in the new Ravenna Township, Muskegon County, field, where it controls 11,000 acres in four townships and is now taking gas from eight Berea gas wells and transporting it to Muskegon, about 15 miles, through a $50,000 pipe line laid last fall.

West Texas Rate Cut

AUSTIN, Tex.—The Railroad Commission has approved a voluntary reduction by the West Texas Gas Co. of consumer rates applicable in 42 plains and West Texas cities, the second reduction in two years. Reductions are effective in January.

The new schedule: First 2,000 feet per month $1.25, minimum; next 48,000 feet, 50 cents per thousand; next 50,000 feet 30 cents per thousand; next 400,000 feet 25 cents per thousand, and all over 400,000 feet 20 cents per thousand.

The new rate compares with a present charge of $1.35 for the first 2,000 feet; 55 cents per thousand on the next 2,000 feet; 50 cents per thousand on the next 46,000 feet; 30 cents per thousand on the next 50,000 feet, and 20 cents per thousand on the next 400,000 feet.

Towns in which the reduction is effective include:

Canyon, Hereford, Bovina, Dimmitt, Happy, Tulia, Silverton, Quitaque, Turkey, Kress, Plainview, Hale Center, Lockney, Floydada, Abernathy, Lubbock, Shallow Water, Slaton, Southland, Friona, Post, Levelland, Littlefield, Amherst, Sudan, Muleshoe, Anton, Idalou, Lorenzo, Ralls, Crosbyton, Petersburg, Wilson, Tahoka, O'Donnell, Lamesa, Brownfield, Seagraves, Midland, Stanton, Odessa and Seminole.

A year ago minimum bill was cut from $1.50 to $1.35, and on the second 1,000 feet from 67½ cents to 55 cents with other cuts in the schedule.

The company cooperated with the commission in working out the reductions, Commissioner Thompson said, "and as a result of this attitude by the company its consumers enjoy one of the lowest gas rates in Texas."

Carbon Black Report

Manufacturers of bone black, carbon black and lampblack in the United States reported a total production of more than 350,000,000 pounds with a valuation of more than $15,000,000 during 1935, the Bureau of Census announces.

The production total showed that 61,847,653 pounds of bone black, valued at $1,259,584, 352,749,000 pounds of carbon black valued at $13,755,000, and 3,581,429 pounds of lampblack valued at $333,439 had been produced during 1935. The 1933 production valuation was $8,640,650. The 1929 total was $22,400,524. During 1935 the total production amounted to 388,178,082 pounds as compared with the 1933 total of 299,259,897 pounds and the 1929 total of 431,484,543 pounds.

A total of 1,828 employes earned $1,936,570 in 55 establishments during 1935 as compared with only 1,449 employes who earned $1,205,529 in 48 establishments in 1933 and 1,915 who earned $2,583,253 in 77 establishments during 1929.

Grand Rapids Controversy

MUSKEGON, Mich.—Michigan Public Utilities Commission recently reaffirmed its original order of late summer, 1936, limiting Grand Rapids consumers to a 50-50 mixture of natural gas from the tri-townships field of central Michigan and artificial gas by Grand Rapids Gas Light Co. The commission referred the controversy back to Circuit Judge Charles H. Hayden, of the Ingham County Court, Lansing. The next move has not been indicated, though Grand Rapids consumers continue to use 100 per cent natural fuel through a $600,000 pipe line.

Texas Gas Revenue

AUSTIN, Tex.—Comptroller George H. Sheppard has reported an increase of $250,513 in revenue from oil, natural gas and carbon black in November by virtue of the omnibus tax bill.

Oil men paid $1,005,099.94 on production of 34,351,745 bbls. in November, compared with $799,493.46 on 36,999,978 bbls. the preceding month. The average tax was 2.92 cents per barrel. The omnibus bill imposed a levy of 2¾ cents a barrel or 2¾ per cent of value, whichever was higher. The former tax was 2 cents or 2 per cent of value.

November natural gas tax collections aggregated $47,317.50, compared with $25,615 per month during the fiscal year ended August 31. The levy was boosted from 2 to 3 per cent of value.

The first month's revenue from the carbon black tax amounted to $23,203.54. There was no tax on carbon black production prior to passage of the omnibus bill.

Refinery Expansion

Dismantling Empire Refinery

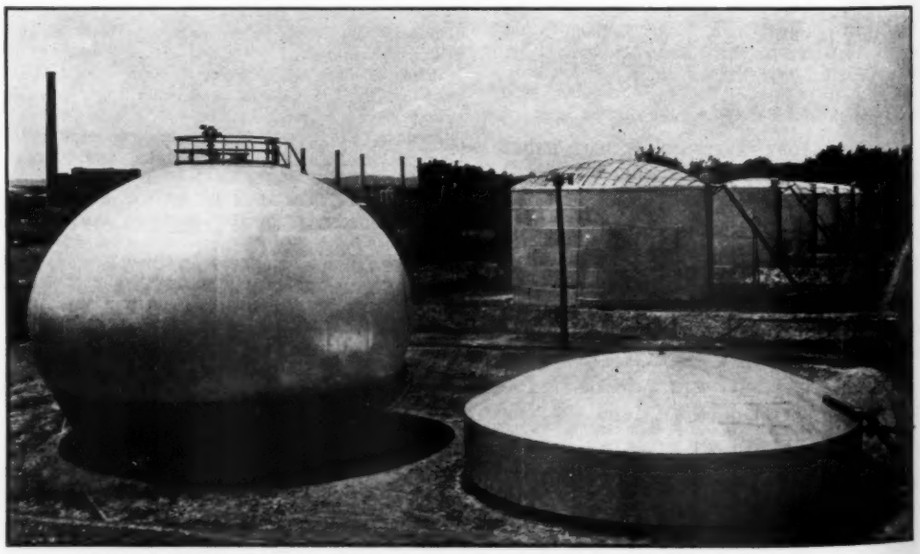
FORT WORTH, Tex.—Dismantling of the former Empire Oil & Refining Co. skimming plant at Gainesville for removal to Mount Pleasant, Tex., and inclusion in the plant of the Talco Asphalt & Refining Co., is now under way. The skimming plant, with a daily capacity of 3,000 bbls., has been purchased by the Talco company composed by Capt. J. F. Lucey, D. H. Byrd, R. E. Fair, and Jack Frost.

The skimming plant is expected to be ready for operation by April 1 and will operate on Talco crude. The refinery will also include a Dubbs cracking unit. Contracts for tanks at the refinery site have been awarded the Wyatt Metal & Boiler Works of Dallas. Storage at the refinery includes one 55,000-bbl. tank completed and another building with the total capacity to be 250,000 barrels when the farm is completed.

Fire Damages Refinery

MUSKEGON, Mich.—The Roosevelt Oil Co.'s refinery at Mount Pleasant, Mich., was damaged last week to the extent of several hundred dollars by fire. The fire started when sparks from welding shot through a sewer during new construction activities. The blaze threatened several 10,000-bbl. storage tanks of gasoline. The company is nearing completion of installation of a new lubricating unit.

AETNA TAKES OPERATING LICENSE



LOUISVILLE, Ky.—Aetna Oil Service, Inc., who operate a 2,000-bbl. refinery at Louisville, Ky., has taken a license under patents of Gasoline Products Co., Inc., for its cracking operations. Cracking facilities at the Aetna refinery currently employ a type of two-coil operation for the cracking of residual feed stocks. With the wider scope of processing methods available under the new license a study of improvements possible in the cracking operations will be undertaken.

The 6,000-bbl. Hortonspheroid shown here is located in Aetna's plant at Louisville. It is used to store natural gasoline for blending purposes under 15 pounds pressure.

Pipe Line Activity

West Texas Expansion

FORT WORTH, Tex.—Humble Pipe Line Co. and Shell Pipe Line Co. have been extending and increasing capacities of some of their lines in West Texas during the past few weeks. Humble has just completed 13½ miles of 8-inch from its Crane station northwest to its Junction station to handle Andrews and Ector counties crude coming into the main line, and is also expected to lay a connecting line from its main line about 6 or 7 miles north of the Sand Hills or Tubbs pool in western Crane County, to that pool where Humble Oil & Refining Co. has production and is drilling more wells.

The company is also laying 9.85 miles of 8-inch from its Crane station on its McCamey line and 16 miles of 8-inch out of McCamey east toward Kemper station in Reagan County. When completed it will have four 8-inch lines for 16 miles and two 10-inch the remainder of the distance between McCamey and Kemper, increasing capacity of the main line to Ingleside. The Kemper station to station "A" near Ozona is installing 4 miles of 12-inch loops and between stations "A" and "B" near Senora, in Sutton County, it is installing 1 mile of 10-inch loop. This will increase this line from 50,000 to 60,000 bbls. per day.

Shell Pipe Line Co. has laid 5 miles of 4-inch line from the Col-Tex Refining Co.'s refinery at Colorado, Tex., to connect with its main 10-inch line from McCamey to Healdton, Okla., and is reported purchasing 25,000 bbls. of gasoline per month from the refinery and running it through this line.

Hearing on Pipe Line Valuation

The Interstate Commerce Commission has set the hearing on the proposed valuation of the Atlantic Pipe Line Co. for February 15, presided over by Mr. Pattison, head valuation examiner.

There have been 10 tentative valuations issued to date and each will be the subject of a separate hearing, after which briefs may be filed and all arguments had before the entire commission.

Skelly Line Contract

Skelly Oil Co. has let contract to Truman Smith Construction Co. for constructing a 20-mile extension west from its 6-inch line at Lorraine, Kans. Seamless pipe in 40-foot lengths will be used and all joints will be oxyacetylene welded by the lindeweld method.

McClain County Line

White Deer Pipe Line Construction Co., Oklahoma City, has been awarded contract for a 12-mile 4-inch oil line by Anderson-Prichard Oil Co. Line to be laid from a point near Moore, Okla., in new McClain County field, to Anderson-Prichard booster station, southeast of Oklahoma City, will be oxyacetylene welded by the lindeweld method.

Pearsall Field Line

CORPUS CHRISTI, Tex.—Humble Pipe Line Co. is to lay an oil line to connect the Pearsall field of Frio County, Southwest Texas, with the trunk line from West Texas to the Gulf at Harbor Island. The line will be of 6-inch welded type. It will give the Pearsall field its first outlet by pipe line to deep water, adding to the movement of crude to the Corpus Christi area.

At present the production of the field is gathered in the system of Amerada Petroleum Corp., sole operators in the field, and is shipped in tankcars from the company's loading rack at Melon, a short distance from the field. Considerable crude is in storage in the field and at the terminal at Melon, consisting of production from the three sands of the field, the Buda lime, Navarro sand and Austin chalk.

Pipe Line Completed

INGERSOLL, Ontario.—The 13½ miles of 6-inch line to deliver gas from the Brownsville field to the Southern Ontario Gas Co. main transmission line at Ingersoll has been completed by Oxford Pipe Line Co. Contracts have been let by the Oxford company to a Niagara Falls firm for the cement work and to Toronto Foundry Co. of Toronto for the iron and steel work for the purification plant in the Brownsville field. Work will be started at once and completed by April 1.

Contracts of Oxford Pipe Line Co. call for a sale to Southern Ontario Gas Co. of 450,000,000 feet of gas per year, with a minimum of 15,000,000 feet a month.

Natural Gasoline

Production Increases in Texas

There was a general increase in dry and casinghead gas production throughout Texas during November as compared with October, according to the monthly report compiled at the direction of the Railroad Commission of Texas. During that month the Panhandle produced 73.44 per cent of the total dry and wet gas produced throughout the state. The statewide production during November increased 4.57 per cent over October, the increase of wet gas being 3.52 per cent and the increase of dry gas 7.46 per cent.

The total daily production of dry gas for the month was 1,644,157,000 feet of which the Panhandle produced 1,235,292,000 feet. In October the total daily production was 1,539,093,000 feet, the Panhandle producing 1,155,665,000 feet.

The volumes of dry gas for light and fuel purposes delivered to pipe lines during the month increased 8.97 per cent or to a total of 1,106,052,000 feet daily and amounted to 67.27 per cent of the total gas used. The remainder of the dry gas was disposed of as follows: Repressure, 17,109,000 feet or 1.02 per cent; gas-lift, 26,735,000 feet or 1.63 per cent; stripped and resold gas, 481,501,000 feet or 29.30 per cent; and gas for miscellaneous lease operations, 12,760,000 feet or .78 per cent.

The quantities treated by gasoline plants increased by 4.97 per cent, but there was a slight decrease in gasoline produced. Of the total amount of gas processed, 1,899,016,000 feet daily, 788,151,000 feet was casinghead gas, 464,209,000 feet sour gas, and 646,656,000 feet was sweet gas. From this total amount processed, 1,862,126 gallons of natural gasoline was extracted daily, or an aver age of .98 gallon per 1,000 feet of gas.

The deliveries to carbon black plants decreased slightly, but there was a small increase in the carbon black produced. A daily total of 677,559,000 feet was used for carbon black manufacturing, from which 990,103 pounds of carbon black was produced, or an average of 1.46 pounds per 1,000 feet of gas.

Phillips Building Rodessa Plant

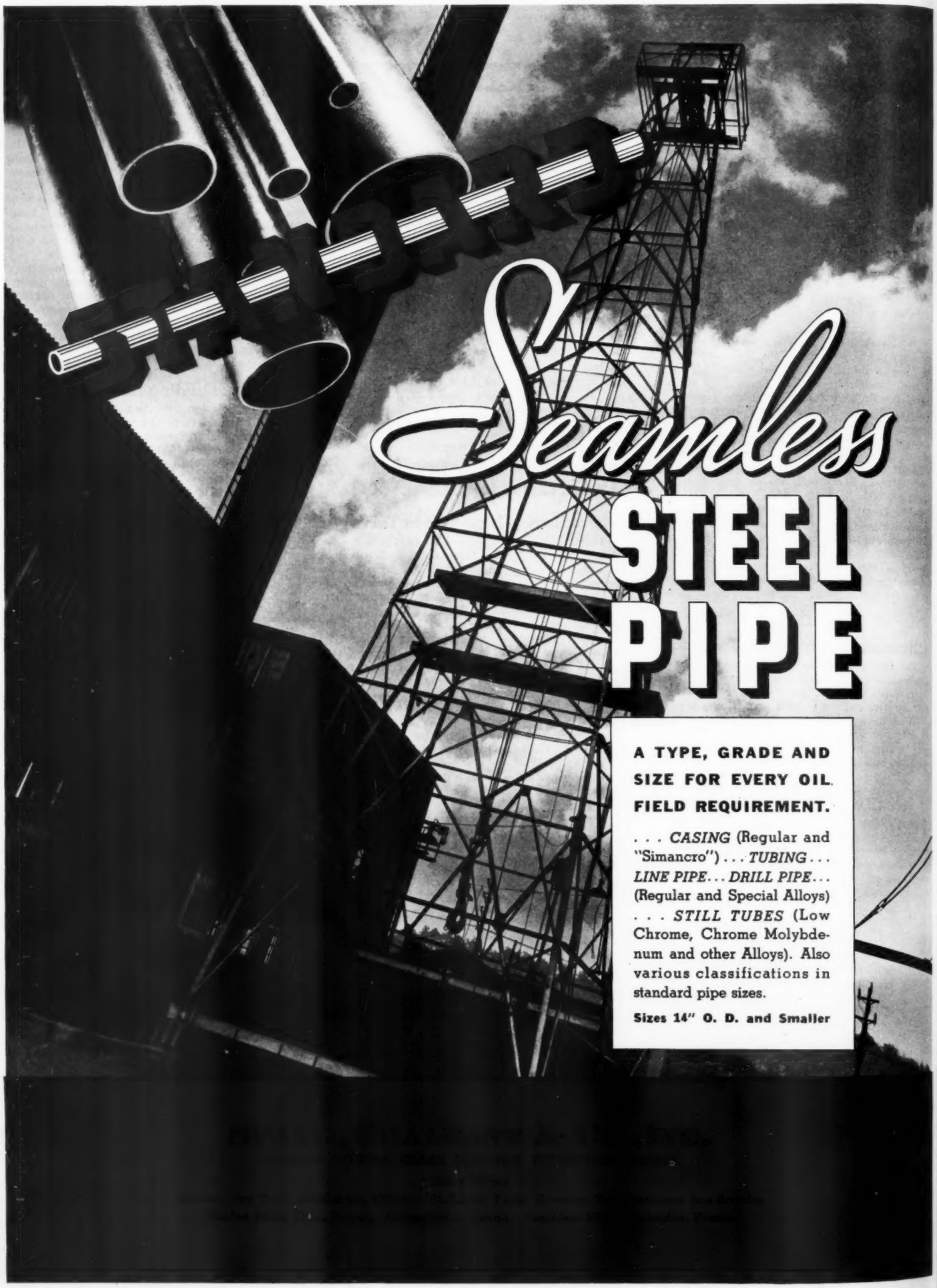
Phillips Petroleum Co. has started construction of a natural gasoline plant near Lodi, Cass County, Texas, the plant to process gas from the Texas side of the Rodessa field. The plant will be of sufficient capacity to handle approximately 50,000,000 feet of gas daily, which will give an output of about 25,000 gallons daily. The plant will operate as a well-pressure plant when it is put in operation about March 1. Cost of the plant will approximate $600,000.

Another plant is also planned for this area, that of the Cass-Liberty Gasoline Co. This company has planned construction of a 30,000-gallon capacity plant in the J. H. Rives Survey, Cass County; the plant to be located on property of the Americal Liberty Oil Co.

Cabot Building New Plant

FORT WORTH, Tex.—Officials of the Cabot Co. have announced that the firm has started construction of a new carbon black plant at Wickett, Tex., on the Texas & Pacific Railroad west of Monohans. The plant will have a daily capacity of 20,000,000 feet of gas, being supplied with gas by the Gulf Oil Corp. from the north Ward County field. Operation of the plant is expected to begin about May 15.

Bending the pipe over the ditch


Seamless
STEEL
PIPE
A TYPE, GRADE AND SIZE FOR EVERY OIL FIELD REQUIREMENT.
. . . CASING (Regular and "Simancro") . . . TUBING . . . LINE PIPE . . . DRILL PIPE . . . (Regular and Special Alloys) . . . STILL TUBES (Low Chrome, Chrome Molybdenum and other Alloys). Also various classifications in standard pipe sizes.
Sizes 14" O. D. and Smaller

Oil News from Foreign Lands

Japan's Oil Imports

Out of 18,372,000 bbls. of crude and heavy fuel oil imported by Japan during the first nine months of 1936, the United States supplied 13,624,000 bbls., or about 67 per cent of the total.

Japan's petroleum imports increased throughout the list, but was particularly spectacular in paraffin wax. The country imported 60,370,000 pounds of wax during the first nine months of 1936, compared to 26,869,000 pounds for the same interval in 1935.

The following table shows the imports by products and by leading suppliers in the case of crude and gasoline.

JAPAN PETROLEUM IMPORTS

Products—sources—	Bbls. Jan.-Sept. 1936	Bbls. Jan.-Sept. 1935
Crude oil	18,372,000	15,967,000
United States	13,624,000	12,149,000
Others	4,748,000	3,818,000
Gasoline and kerosene	3,382,000	3,132,000
Netherlands India	2,402,000	1,936,000
Others	980,000	1,196,000
Lubricating oil	328,000	207,000
Petrolatum (lbs.)	1,089,000	925,000
Paraffin Wax (lbs.)	60,370,000	26,869,000
Grease (lbs)	1,163,000	5,614,000
Pitch and asphalt (metric tons)	4,259	3,604

Brief Strike in Mexico

A 24-hour cessation of oil producing activities in Mexico on January 15 followed a ruling by President Cardenas which the oil workers syndicate considered inimical to its interest.

The protest of a 24-hour strike against President Cardenas' ruling threw 18,000 workers off duty for a full day, but they returned to their jobs the following day.

Consideration of the proposed contract law to govern all Mexican oil workers was temporarily disrupted by order of the president who ruled in favor of the stevedors in their request that they be excluded from provisions of the law under discussion. Leaders of the oil workers syndicate insisted that the stevedors be included, but were overruled by the president.

The 24-hour strike was in protest of the president's ruling and not because of any new difficulty with employers.

Despite the disruption of negotiations on the contract law, last week's developments in Mexico in the matter of indemnifying owners of property seized by the state for redistribution is considered a favorable indication by American oil companies interested in the country. While seizure of the oil properties is far from being desired by the companies and any effort to do so by the state would meet with bitter protest, the action of indemnifying the owners is a welcome development.

President Cardenas' ruling against the oil workers syndicate in last week's dispute was only another of several clashes recently with extremists backing him.

He first had a showdown with extremist labor over the entry of anti-Stalinist Leon Trotsky and won. He has also issued an order guaranteeing freedom to the press in criticism of the government. His further action in agreeing to indemnities on land seized "within Mexico's capacity to pay" marks another step contrary to the wishes of extremists.

Although oil companies are unwilling to even talk about the possibility of Mexico's seizure of their properties, and so far they have had no occasion to more than speculate on the possibility, the government's course of indemnifying the injured parties is gratifying. The course charted by President Cardenas in issuing ironclad bonds to indemnify owners of agrarian lands seized probably means that the same procedure would be followed in the case of oil properties. Furthermore, the indicated policy probably will mean an indefinite delay in action against oil companies despite the attractiveness of their properties until Mexico is in position to make full retribution.

Polish Crude $4.07 Per Barrel

Polish oil companies engaged solely in the refining branch of the industry have been forced into a precarious position, the Petroleum Press Service of London relates, by a series of price increases which now hold crude at approximately 150 zloty per ton (approximately $4.07 per barrel on the existing basis of exchange).

The Petroleum Press Service relates that some part of this price inflation seems to have been played by the state refinery, "Polmin," which processes the government's royalty crude but operates considerably below capacity. The "Polmin" refinery's part in the crude advance is linked to an effort to increase its scope of operations. Since the advance in crude prices started, however, "Polmin" announced that it would request the government to assign quotas to all refineries if the increase was not halted. One of the foreign refining companies operating on Polish crude oil is reported selling kerosene below the market with the apparent objective of halting the inflationary move.

Internal consumption and marketing conditions are reported in no condition to support the higher prices. This conclusion is held particularly true with reference to companies engaged only in refining.

A bulk of Poland's crude oil produced by companies engaged only in that branch of the business is sold on a contract basis with prices current at the time of delivery regulating the basis of settlement with refiners. Under those conditions, the comparatively insignificant amount of crude available to spot buyers governs the contract market.

Mediterranean Marketer

California Texas Oil Co., Ltd., has organized a subsidiary marketing and distribution unit for sale of gasoline and products in the Mediterranean Basin and Red Sea area. The new company, incorporated in Egypt, has a capital of $100,000 divided into 5,000 shares of which California Texas holds 4,300. Henry D. Collier, of San Francisco, vice president of Standard Oil Co. of California, is chairman. The board consists of five Americans, two Egyptians and one Englishman. Headquarters will be in Alexandria.

End of Venezuela Strike

Oil field laborers in the Lake Maracaibo district of Venezuela who had been on strike since Dec. 14 started returning to work Jan. 25 and full resumption of normal operations was expected by the end of the current week. The strike was called over the asserted failure of government agencies to issue rules and regulations under terms of a new petroleum law passed in Venezuela last fall.

The prediction that the strike would be terminated soon as made by Venezuela sources last week when the president issued instructions to high army officials to end the strike on a basis equitable to all concerned.

Clay Treating License

Petrol Block, S.A.R., has obtained a license from Gray Processes Corp. for clay treating the cracked gasoline to be produced from a Dubbs unit at its refinery "Standard" at Ploesti, Rumania. The installation, similar to that recently placed in operation by Creditul Minier at its refinery in Brazi, Rumania, will have two Gray towers operated in series. It will treat gasoline produced from a combined coking and flashing operation on topped Rumanian crude charging stock.

Petrol Block is the third Rumanian licensee of Gray Processes Corp., the others being Creditul Minier and Steaua Romana. Steaua Romana is now completing a new cracking plant, which will be its fourth unit to be equipped with Gray towers.

Rumanian Production

Another reduction in Rumanian crude oil production in October from the peak in July indicates the nation's yield for 1936 may not touch previous estimates. October's production is estimated at 5,010,026 bbls. or a daily average of about 161,615 bbls., compared to 5,040,490 bbls. in September and 5,375,965 bbls. in July. Rumanian production for the first 10 months of 1936 is reported in the Petroleum Press Service of London at 51,049,866 bbls., compared to 48,588,911 bbls. for the same period in 1935. On the August, September and October basis of decline, it is estimated Rumania's 1936 production will approximate 60,550,000 bbls., against 58,758,000 bbls. for 1935. The slump is due to the comparatively rapid decline of flush production from the new deeper horizon discovered in the spring of 1936 in the Bucsani field, in the old Dambovitza district.

Far Eastern Petroleum Co.

Standard Oil Co. of California has organized the Far Eastern Petroleum Co., Ltd., a private British concern with capital of 1,000 pounds. The registration statement did not disclose the full particulars of the company's operating plans, but indiacted that it may participate in all phases of the industry from exploration on through marketing. In view of the Standard Oil Co. of California holdings in Arabia and in the Dutch East Indies, part of which are up for exploration in 1937 and 1938, it is considered likely the new company was formed to carry on the projected work.

Pressure tankage recently completed for Anglo Ecuadorian Oil Fields, Ltd., at LaLibertad, Ecuador

the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

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Estimating Known Reserves

Anyone starting an industry or a business first makes sure where he can get his raw material or supplies. The steel industry knows where its ore is coming from, the coal industry its coal, the copper industry its copper, the lumber industry its timber. How much does the oil industry know about its reserves of crude?

At the close of 1934 the American Petroleum Institute estimated known reserves at around twelve billion barrels. Before that several estimates had been made, all disproved by the drill.

Yet there is nothing of more vital importance to the industry than its supply of raw material. Its troubles with overproduction would be as nothing compared with what underproduction would mean. Clearly, any light that can be thrown upon this subject is of the utmost moment.

With this situation in mind as one feature of its Annual Review, this week The Oil and Gas Journal presents a report covering the new discoveries since the close of 1934. This report not only gives the aggregate figures but detailed data on which the totals are based.

This removal of the mystery in estimating new reserves not only appears logical as a contribution to the basic economic information of the industry but it is a natural development of the increased knowledge of producing formations.

Fortunately, through the progress in geological and engineering knowledge, the industry today is in a position to take it out of the range of guesswork and arrive at an estimate sufficient for practical purposes.

That knowledge of underground conditions is recognized by law in potentials for proration. We now know enough about the characteristics of producing formations so that from the time oil is discovered we can begin to estimate the significance of the ultimate production.

Efficient and orderly production, conserving the oil for future needs and preventing present waste, is a direct aid to stabilization. Accumulated experience and increased knowledge permits estimates that can be made the basis of practical calculations.

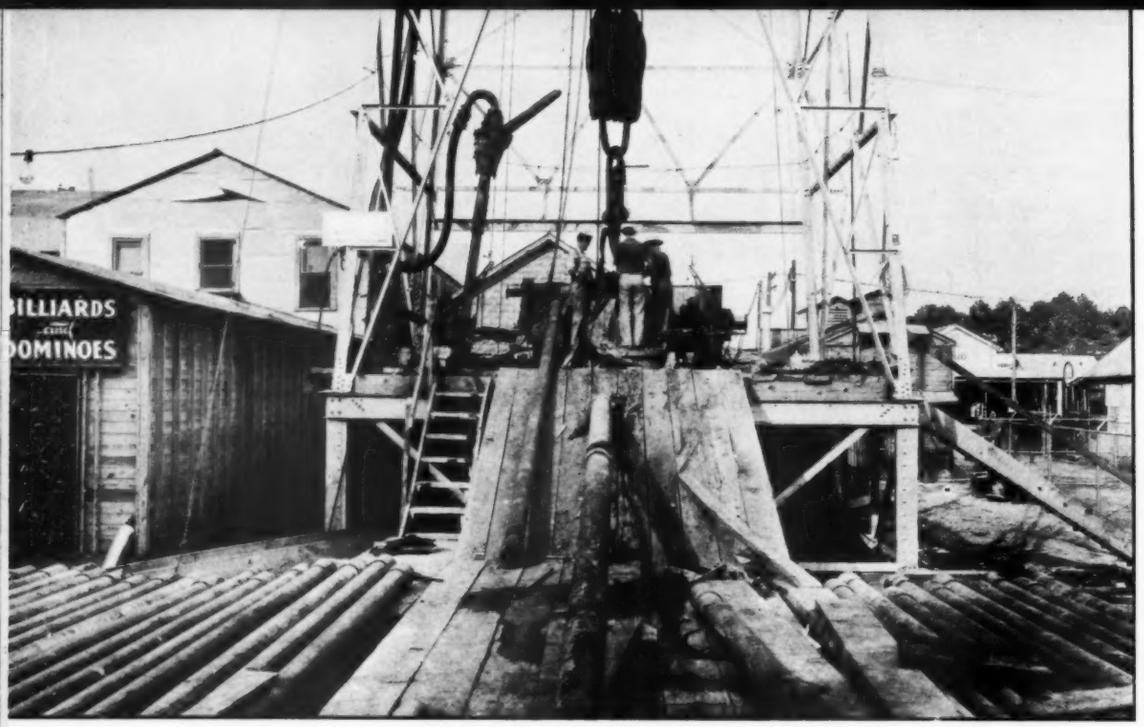
When we speak of reserves at any particular time it must be with regard to time and price. More costly exploratory work or secondary recovery can add to reserves but they depend upon price. It is not sufficient to make a profit which is not large enough to pay for the discovery and production of future oil.

This company now operates 26 reflection seismograph crews in the United States and abroad.

Experience gained from operations in eighteen states in the United States, in Canada, Mexico, Venezuela, and Colombia plus the supervision of competent men associated with the seismograph industry since its inception is your guarantee of satisfactory results.

GEOPHYSICAL SERVICE INC.

DALLAS, TEXAS



1936

1937

In many respects 1936 was an amazing year for the oil business, amazing both for what the industry had to do and how it did it.

Confronted unexpectedly with the largest demand for petroleum products on record, exceeding all calculations in gain, the industry successfully met every requirement in quantity, quality and immediate delivery. The facts presented in this annual review speak for themselves.

The production division produced 1,089,014,000 barrels of crude oil in the United States during 1936. This was almost 100,000,000 barrels or 10 per cent more than during the previous year and 81,691,000 barrels more than was produced in the previous peak in 1929.

GASOLINE DEMAND

This 1936 crude was produced to supply a domestic gasoline demand which established a new all-time record with an increase of 11 per cent, totaling better than 475,000,000 barrels or 20,000,000,000 gallons of motor fuel. In addition, markets outside this country were furnished more than 28,000,000 barrels or approximately 1,190,000,000 gallons.

Strange as it may seem, a new record was also established in domestic demand for kerosene, requiring approximately 50,000,000 barrels, plus nearly 7,000,000 barrels exported.

FUEL AND GAS OIL

Consumption of fuel oil and gas oil increased more than in any previous year so that when the final figures become available they will show an aggregate export and domestic demand for 440,000,000 barrels.

The domestic demand for lubricating oil reflected not only the increased motor consumption but also the demand due to expanding industrial recovery, so that more than 30,000,000 barrels were required to supply domestic and foreign buyers.

In order that crude oil would be available to supply these greatly enlarged demands 24,846 wells were drilled, not including 723 pressure wells, maintaining the total number of producing wells above the 300,000 mark.

MOTOR FUEL SUPPLY

Nearly 500 refineries in all parts of the country processed approximately 1,070,000,000 barrels of crude to produce the products required, while 850 natural gasoline plants located in all the principal producing areas added 42,000,000 barrels to the motor fuel supply.

To transport the increased volume of crude from the field to the refinery major pipe line systems were looped and otherwise expanded, while the gasoline pipe lines carried more gasoline to the points of distribution.

To take care of the better than 10 per cent increase in consumer demand wholesale and retail marketing facilities were

What of 1937? A Forecast

Refiners in the United States will be called upon to supply at least 38,000,000 barrels more gasoline in 1937 than in the record year closed a month ago. This means a total export and domestic demand of approximately 545,000,000 barrels or 22,890,000,000 gallons for the year now underway.

To supply this market will require 1,231,510,000 barrels of crude or 3,374,000 barrels daily to come from domestic fields and importations, supplemented with withdrawals from storage.

Interpreted in terms with which the industry in this country is accustomed to chart its course the increased demand for gasoline this year points to an average gain in crude requirements of 225,000 barrels daily from domestic fields. If the industry should decide its above-ground storage has been reduced to working requirements, an additional 70,000 barrels daily will be needed, making a total of 295,000 barrels daily which operators will have to produce from established reserves.

This large increase in demand is based on assumptions which at this time appear reasonably certain to materialize.

They take into consideration that motor vehicle registrations at the start of the year were more than 2,000,000 greater than any previous year. It is assumed 4,750,000 new units will be sold during the year with a larger percentage than ever of trucks, buses and other motor vehicles which have the largest gasoline consumption per unit.

From these basic data, conservative statisticians are predicting an increase in domestic gasoline demand of around 8 per cent over the record consumption of nearly 480,000,000 barrels in 1936 to which will be added 27,000,000 barrels of exports, a duplication of the past year.

In estimating the 1937 requirements it is presumed the 1936 percentage relationship of imports, exports and domestic natural gasoline production will continue. Imports represent less than 5 per cent of the total supply of petroleum products, natural gasoline less than 9 per cent and on the demand side exports account for less than 12 per cent. Minor variations in these relationships during 1937 will not materially affect an industry in which domestic developments are the dominating factor.

The principal sources of supply in barrels daily in 1936 were as follows: Domestic crude production, 2,990,000 barrels; crude from storage, 70,000 barrels; imported crude 89,000 barrels; natural gasoline output, 114,000 barrels. A gain of 5 per cent in natural gasoline output in 1937 will add less than 6,000,000 barrels to the supply so the bulk of increased demand must come from new crude supplies. This is the basis for the estimated increase of 225,000 barrels daily in domestic crude requirements with additional supplies needed if the industry refuses to further liquidate its above-ground storage after withdrawing approximately 25,000,000 barrels from stocks in 1936.

The volume increase in domestic and export fuel oil and gas oil consumption in 1936 was even greater than the gain in motor fuel demand. The sensational increase which brought a new peak in consumption of these products reflects a rapid recovery in industrial and marine consumption coupled with an expansion in outlets for fuel distillates in heating homes and other buildings. A further expansion in general business assures the demand will continue to increase.

Was Amazing Year! Will Set New Record

expanded and improved in all parts of the country during 1936.

Taking into consideration the producing, refining, transportation and distribution branches, it has been calculated that for every barrel of oil produced during 1936 the oil industry spent a dollar with other industries for equipment and materials, the total running to more than a billion dollars.

EMPLOYMENT INCREASED

Employment in refineries rose to a new high during the year, with weekly wages substantially higher than average wages and working hours near the minimum.

Looking at the industry from the standpoint of investment, stockholders in oil companies received over $100,000,000 more in 1936 than they did in 1935.

The oil business' contribution to the increased cost of government also established a new record. The complete figures will show that taxes collected from the industry rose to around $1,250,000,000, a very substantial increase over the previous year.

These are some of the cost factors borne by the industry while meeting the greatest demand for its products ever made upon it. Ordinarily it would be assumed that the added expenditures would mean a sharp rise in product prices.

PRICE OF GASOLINE

The record given in detail in the table showing the average price of gasoline in 50 representative cities scattered over the country reveals the astonishing fact that the average retail price per gallon was only 14.11 cents, exclusive of taxes, an increat of only .56 cent over the previous year and only 1.35 cents, or but 10 per cent, above the depression low of 12.76 cents a gallon, which was the average for 1933.

The average price in 1926 was 20.92 cents a gallon so that the price of gasoline during 1936 was less than 70 per cent of the objective sought as recovery.

What this means may be seen quickly when it is contrasted with farm products prices at 83 per cent of 1926 and food prices at 82.5 per cent. The index for all commodities is 81, far above the modest not quite 70 per cent gain in gasoline.

OTHER PRODUCTS

The same price situation is found in many of the minor products of petroleum. Refiners supplying the record domestic demand for kerosene found the wholesale price in representative refining areas only .12 cent higher per gallon than in 1935. Fuel oil is up but 3.87 cents per barrel and wax only .21 cent per pound in the representative Group 3 area.

This is really the most amazing feature of an amazing year in the oil business, that the industry has been able to supply this tremendous demand, shoulder all the enlarged expenditures, and yet do it with a nominal increase in cost to the consumer.

Records in 1936

Largest production and consumption of crude oil in the United States and entire world.

Largest domestic demand for gasoline, kerosene, fuel oil and gas oil.

Largest number of wells drilled since 1929.

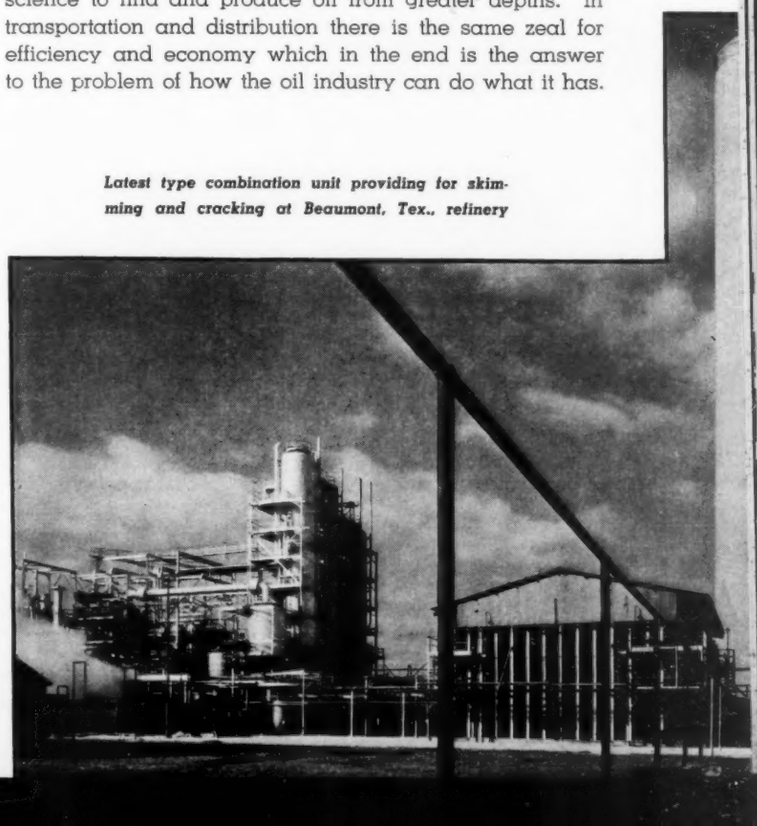
Largest crude runs to stills.

TECHNICAL PROGRESS

Nor is that all, since besides producing all the oil that was currently needed it found new reserves which are only slightly less than the volume consumed during the year.

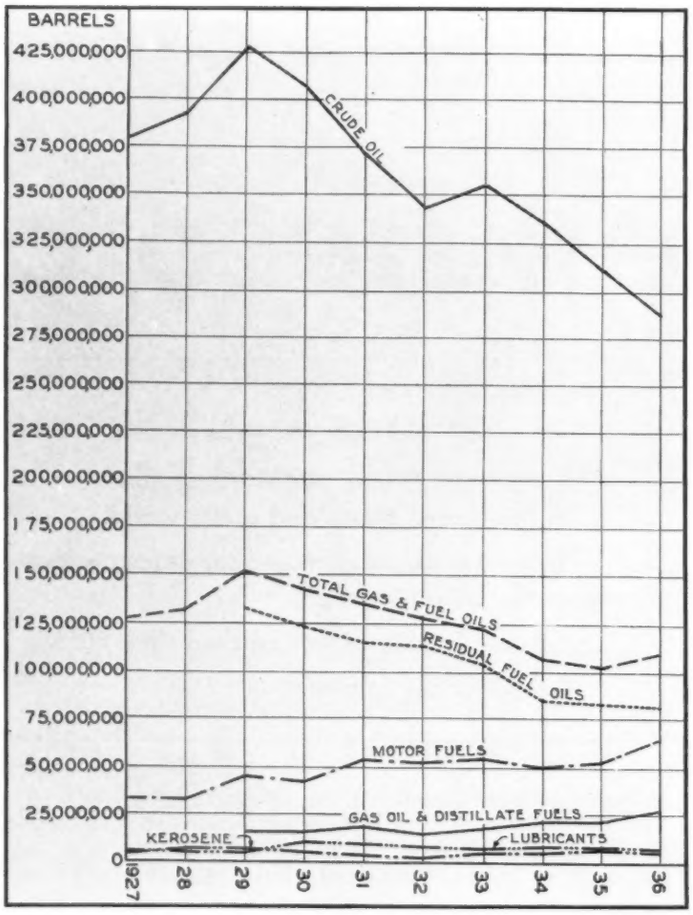
The industry has been able to accomplish what it has only by maintaining constant technical progress. The manufacturing divisions are continually endeavoring to increase the yield of the most desired products and have been doing it with lower rather than higher processing costs. Crude producers have been employing science to find and produce oil from greater depths. In transportation and distribution there is the same zeal for efficiency and economy which in the end is the answer to the problem of how the oil industry can do what it has.

Latest type combination unit providing for skimming and cracking at Beaumont, Tex., refinery

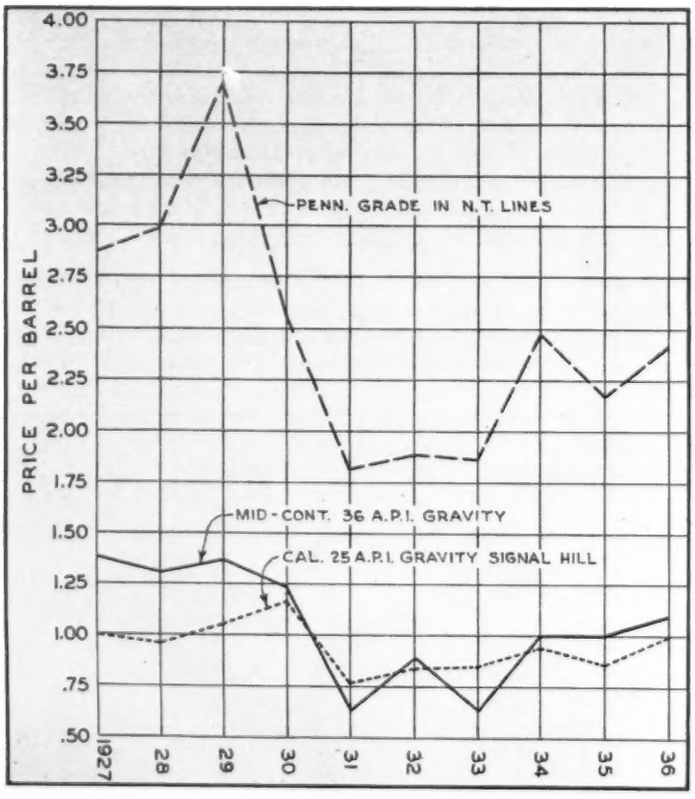


Petroleum Supply, Demand and Prices, 1927-1936

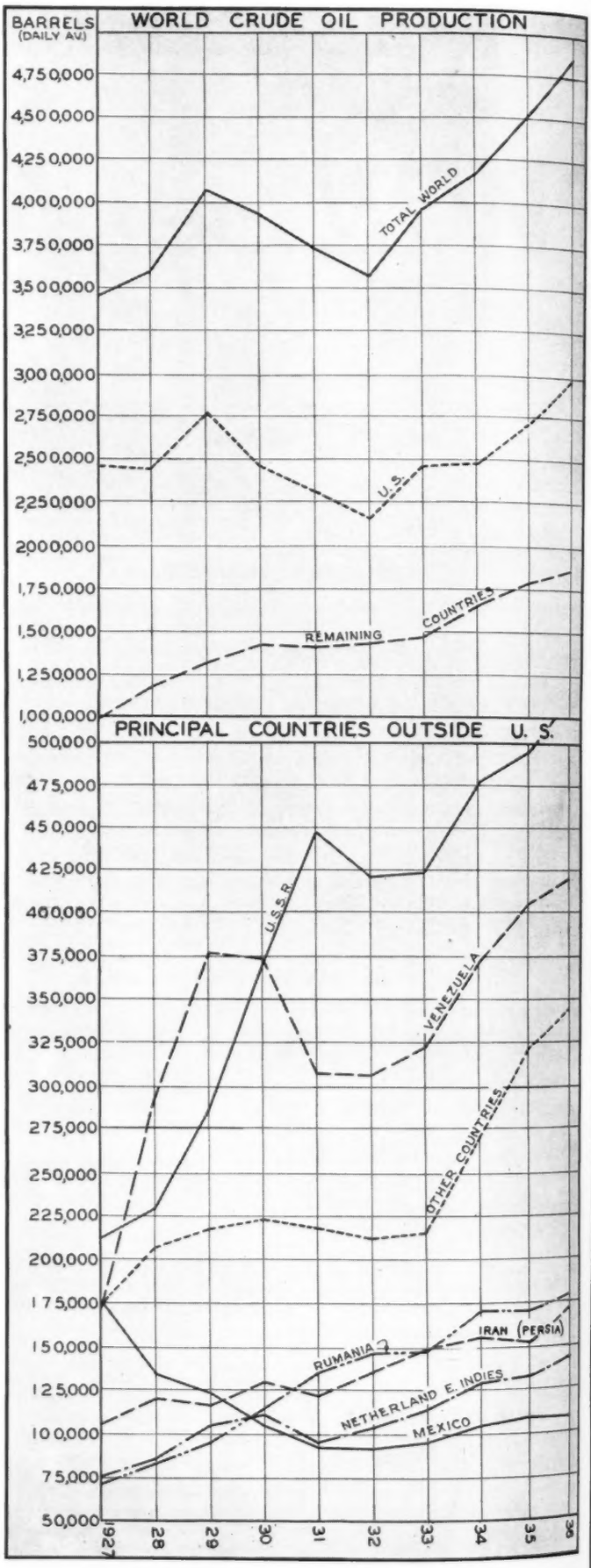
Yearly data shown on vertical lines



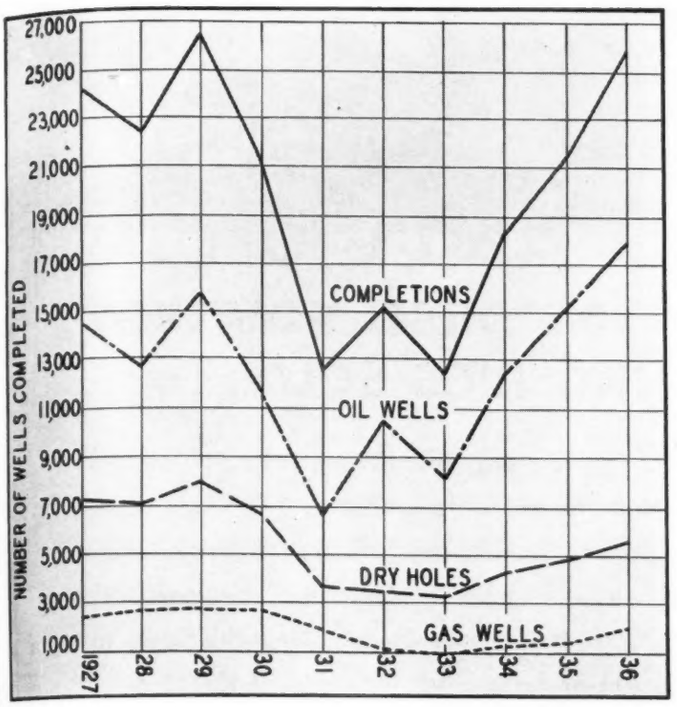
1. Stocks of refinable crude oil and principal refinery products at end of year



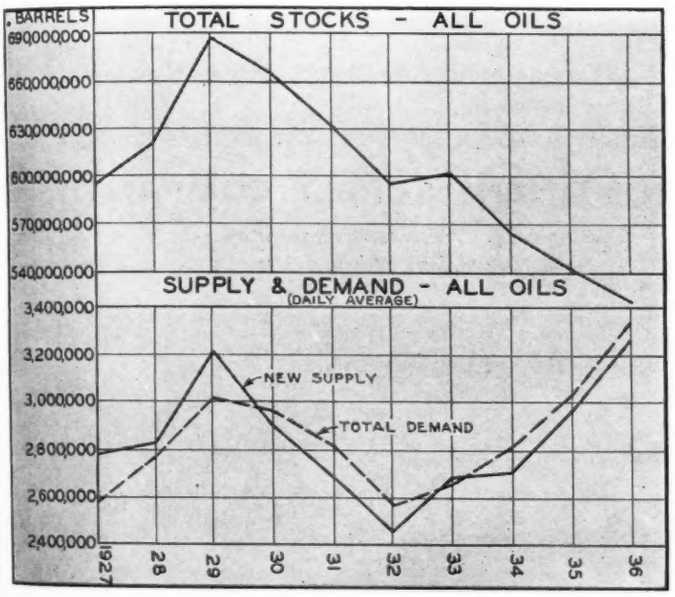
2. Average daily prices by years of representative crude oils



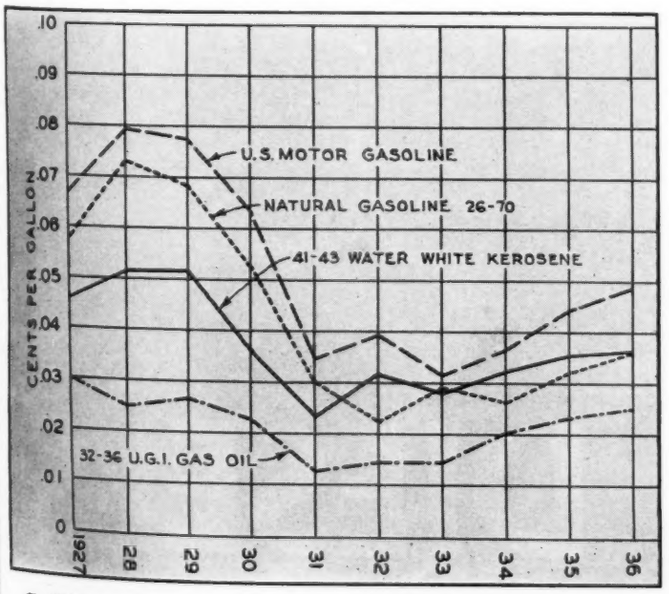
3. Production of crude by countries. In U.S.S.R. was 527,327 bbls. daily in 1936.



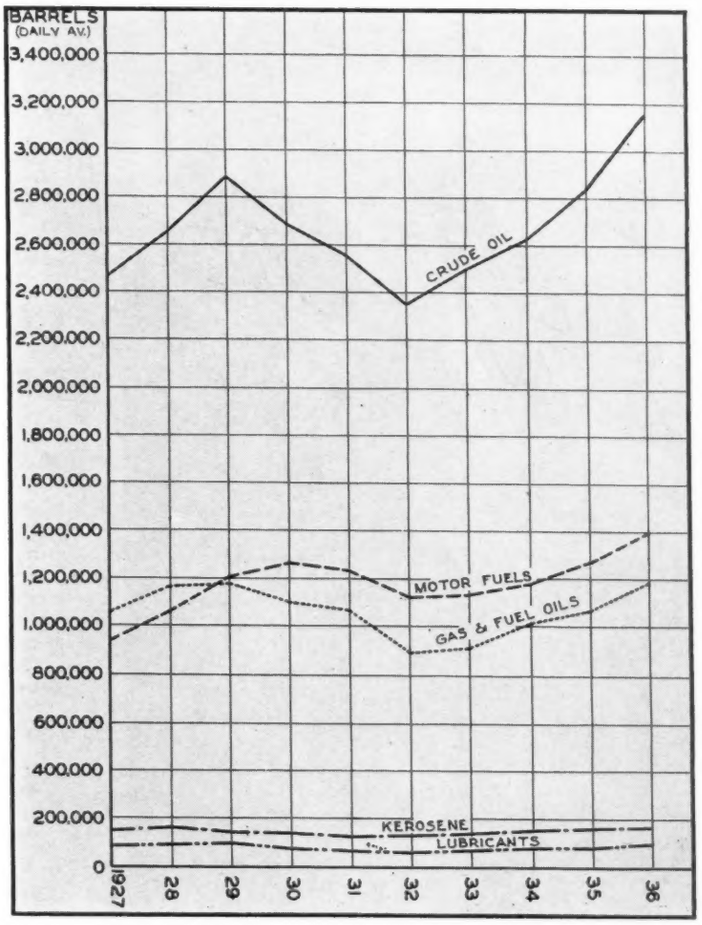
4. Total completions, oil wells, dry holes and gas wells



5. Total stocks, supply and demand—all oils

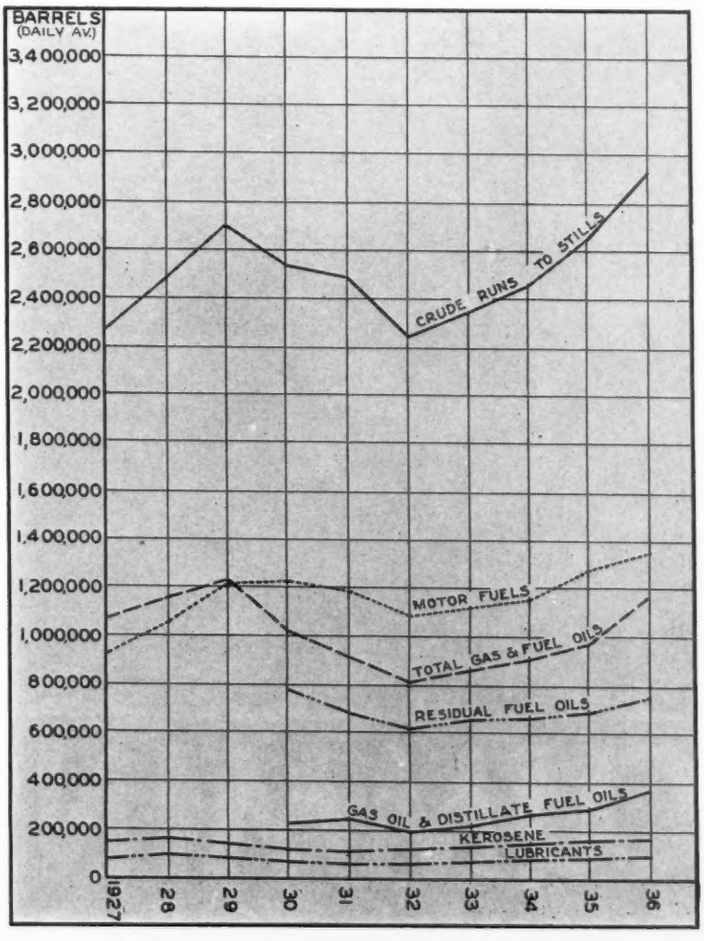


6. Mid-Continent tankcar prices on representative refinery products. Based on weekly quotations for Oklahoma (Group 3)

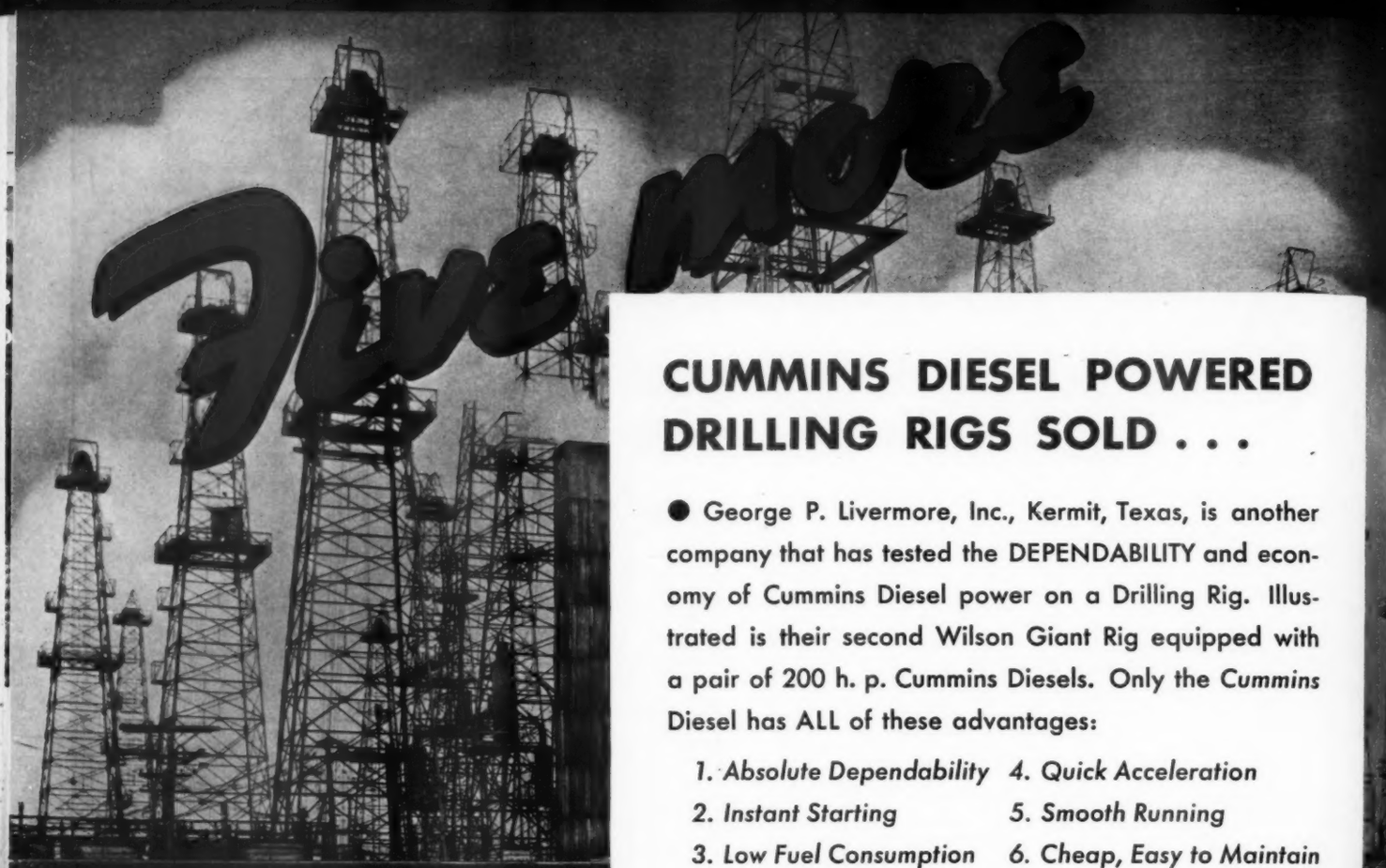


7. Domestic and export demand for crude oil and principal refinery products

Note—Data shown in Charts 1, 5, 7 and 8 derived from Bureau of Mines reports.



8. Crude runs to stills and output of principal refinery products



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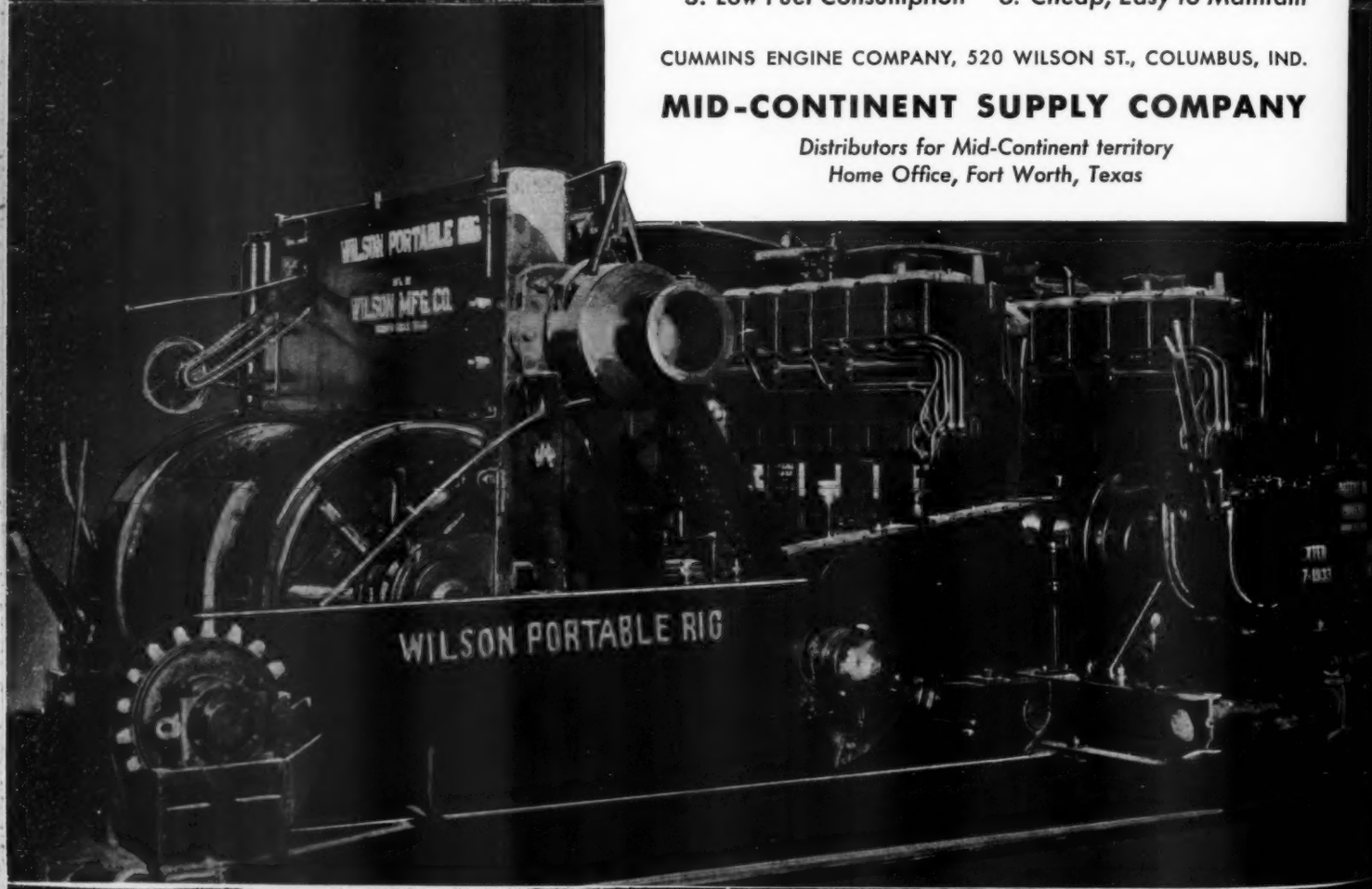


CUMMINS DIESELS

Pioneers in Modern Diesel Development

Gas and Fuel Oil Export Gains More Than Offset Declines

By H. STANLEY NORMAN

NEW YORK.—An increase of nearly 20 per cent in export demand for gas oil and fuel oil during the first 11 months of 1936 more than offset comparatively slight losses suffered by the United States petroleum industry in foreign markets for other products. The almost negligible decline of 1.6 per cent in export movement of crude for the first 11 months may be converted to an increase for the full year when final figures for December are available. Furthermore, the increases in imports of crude and refined products, particularly substantial in the latter, probably will taper off abruptly in the December recapitulation.

The probability that export demand for crude and partially refined products will show a material increase during December is based on the labor strike situation in Venezuela forcing Royal Dutch-Shell and Standard of New Jersey interests to call on affiliated concerns and the open market in the United States for part of their Dutch West Indies charging stock.

Based strictly on the known quantities, however, the United States suffered a slight reduction in crude demand abroad, gasoline shipments tapered off but fuel oil showed a substantial gain and less impressive increases were enjoyed by kerosene and lubricating oils.

On the import side, both crude and refined products shipped to this country increased during the first 11 months. Crude imports totaling 29,713,000 bbls. through November were up approximately 3 per cent from the total of 28,903,000 bbls. at the same time in 1935. However, the foreign crude moved to this country, coming almost

(Continued on Page 75)

TABLE 1—IMPORTS AND EXPORTS FOR FIRST ELEVEN MONTHS OF 1936

(Data from Bureau of Mines)

Year—	Crude oil (bbls.)	Refinery products (bbls.)	Gasoline (bbls.)	Kerosene (bbls.)	Gas oil and fuel oil (bbls.)	Lubricants (bbls.)	Wax (lbs.)
Imports							
1936	29,713,000	22,385,000	.....	1,000	17,122,000	3,000	15,941,000
1935	28,903,000	18,719,000	20,000	.....	18,415,000	.....	18,635,000
1934	32,359,000	13,248,000	.....	.....	11,329,000	2,000	.....
Exports							
1936	46,518,000	73,326,000	25,726,000	6,201,000	31,359,000	7,683,000	170,017,000
1935	47,280,000	69,262,000	27,137,000	6,137,000	26,298,000	7,596,000	204,795,000
1934	38,690,000	67,236,000	23,051,000	8,964,000	25,648,000	7,167,000	.....

TABLE 2—IMPORTS OF CRUDE OIL AND REFINERY PRODUCTS FOR 1936 AT PRINCIPAL PORTS

(Data from A.P.I. Reports)

	Baltimore (bbls.)	Boston (bbls.)	New York (bbls.)	Philadelphia (bbls.)	Others (bbls.)	Total (bbls.)	Gulf Coast (bbls.)	Grand total (bbls.)	Crude oil (bbls.)	Fuel oil (bbls.)	Gas oil (bbls.)	Other pet. oils (bbls.)
January	356,000	246,000	1,551,000	788,000	68,000	3,009,000	258,000	3,267,000	1,809,000	1,458,000	.....	.....
February	266,000	539,000	1,955,000	787,000	76,000	3,623,000	310,000	3,933,000	2,780,000	1,153,000	.....	.....
March	498,000	291,000	2,269,000	736,000	101,000	3,895,000	219,000	4,114,000	2,382,000	1,732,000	.....	.....
April	628,000	441,000	2,450,000	728,000	120,000	4,367,000	639,000	5,006,000	2,966,000	1,815,000	155,000	70,000
May	529,000	339,000	2,678,000	931,000	378,000	4,855,000	364,000	5,219,000	3,054,000	2,121,000	.....	44,000
June	402,000	162,000	2,441,000	801,000	332,000	4,138,000	634,000	4,772,000	2,654,000	1,972,000	.....	146,000
July	631,000	223,000	2,701,000	657,000	130,000	4,342,000	581,000	4,923,000	2,690,000	2,038,000	2,000	193,000
August	511,000	537,000	2,529,000	697,000	290,000	4,564,000	514,000	5,078,000	3,010,000	1,995,000	.....	73,000
September	682,000	453,000	2,325,000	721,000	216,000	4,397,000	474,000	4,871,000	2,806,000	1,844,000	86,000	135,000
October	557,000	448,000	2,478,000	923,000	265,000	4,671,000	535,000	5,206,000	3,128,000	1,897,000	99,000	82,000
November	436,000	548,000	2,093,000	978,000	191,000	4,246,000	537,000	4,783,000	2,867,000	1,706,000	210,000	.....
December	204,000	635,000	2,130,000	782,000	296,000	4,047,000	279,000	4,326,000	2,413,000	1,830,000	83,000	.....
Total 1936	5,700,000	4,862,000	27,600,000	9,529,000	2,463,000	50,154,000	5,344,000	55,498,000	32,559,000	21,561,000	635,000	743,000
Total 1935	4,062,000	5,352,000	22,424,000	8,854,000	2,450,000	44,136,000	6,490,000	50,626,000	30,940,000	19,686,000	(*)	(*)
Total 1934	4,081,000	1,595,000	27,512,000	8,540,000	2,781,000	44,509,000	3,437,000	47,948,000	32,231,000	15,574,000	(*)	(*)

*Totals unclassified for 1935 and 1934.

TABLE 3—1936 RECEIPTS OF CALIFORNIA REFINERY PRODUCTS AT ATLANTIC PORTS

(Data from A.P.I. Reports in barrels of 42 gallons)

	Baltimore	Boston	New York	Philadelphia	Others	Total	Gasoline	Kerosene	Fuel oil	Other pet. oils
January	30,000	55,000	102,000	351,000	226,000	764,000	393,000	133,000	238,000	.....
February	38,000	52,000	.....	189,000	221,000	500,000	259,000	150,000	91,000	.....
March	53,000	.....	351,000	230,000	139,000	773,000	693,000	80,000	.....	.....
April	77,000	.....	.....	350,000	153,000	580,000	507,000	.....	73,000	.....
May	.....	.....	507,000	220,000	216,000	943,000	831,000	79,000	.....	33,000
June	.....	47,000	147,000	116,000	261,000	571,000	418,000	153,000	.....	.....
July	70,000	.....	204,000	347,000	305,000	926,000	696,000	160,000	.....	70,000
August	75,000	.....	324,000	230,000	231,000	860,000	780,000	80,000	.....	.....
September	69,000	25,000	149,000	307,000	115,000	665,000	536,000	.....	.....	129,000
October	140,000	19,000	79,000	232,000	256,000	726,000	513,000	80,000	73,000	60,000
November	55,000	.....	.....	.....	175,000	230,000	80,000	80,000	70,000	.....
December	.....	.....	.....	117,000	76,000	193,000	117,000	.....	76,000	.....
Total 1936	607,000	198,000	1,863,000	2,689,000	2,374,000	7,731,000	5,823,000	995,000	621,000	292,000
Total 1935	767,000	420,000	2,303,000	3,307,000	2,897,000	9,694,000	7,335,000	1,118,000	1,241,000	.....
Total 1934	1,831,000	3,201,000	9,389,000	4,891,000	7,515,000	2,520,000	8,610,000	1,626,000	14,946,000	.....

Station Gasoline Prices Increased in 1936 to Highest in Past Six Years

By D. H. STORMONT

In January, 1936, following price advances in crude oils and subsequent increases in refinery gasoline, service-station prices in 42 cities of the 50-city list were substantially advanced. The average price on February 1 was 14.21 cents per gallon, exclusive of all taxes, and the highest at this time in any of the preceding four years. As the first of each of the succeeding months rolled around the 1936 averages continued to exceed those of the four years, the average prices for the last nine months surpassing those of 1931. Thus when the year was completed the average price for the year, 14.11 cents per gallon, was found to be higher than any since 1930.

This average station price of 14.11 cents compares with 13.55 cents paid in the same 50 cities in 1935 and 12.76 cents in 1933, the all-time record low. These figures, which are based on the pump prices (in some instances on the posted dealer price plus a certain margin) of regular grade, 68-70 octane gasoline in 50 cities throughout the United States, are exclusive of all federal, state and municipal taxes. These taxes, which ranged from 3 cents in a few areas to as high as 10 cents in New Orleans, averaged 5.38 cents per gallon for the year.

The most outstanding development in the retail market during 1936 was the transferring of service stations from the marginal contract, company-owned basis of operation to the dealer-marketing plan or Iowa plan. This plan, which began when the Iowa legislature passed a drastic chain-store tax law in June, 1935, has spread rapidly throughout the United States with the exception of the West Coast. Of the 50 cities carried on the accompanying table, all but eight are now on the dealer basis of operation. While the idea of leasing company-owned or -controlled stations outright to independent dealers did not originate suddenly from the passage of the Iowa tax law, its passage, and the adoption of similar chain-store tax laws in other states, imparted a great momentum to the movement.

Practically all companies reporting the prices carried in the accompanying lists of cities have discontinued posting station prices and now report only tank-wagon and dealer prices. Therefore, in compiling the service-station prices—with the exception of eight cities—the dealer price is used as the base price. To the dealer price is added the normal margin, or the amount that the dealer adds as his margin of profit, and thus a normal pump price is determined. While it is true that the dealer may be underselling this established price, in most instances it would be only temporary, or if continued would usually result in lowering the price to subnormal so that the dealer price will be correspondingly reduced.

Under the marginal contract method of marketing, price wars were numerous, resulting in many instances in both the refiner and jobber taking heavy losses. While the dealer-marketing plan has not eliminated price cutting entirely, the plan so far has worked out very satisfactorily and the majority of refiners, jobbers and service-station dealers express no desire to resume the marginal contract method of marketing.

Examination of the tables presenting gasoline prices by geographical grouping shows that of the

Year-to-Year Trend of Retail Gasoline Prices

Average Service-Station Prices in Cents in 50 Representative Cities, Exclusive of Taxes

	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
January 1	20.25	16.41	18.32	17.23	14.56	12.87	12.54	14.32	12.90	13.70
February 1	20.16	16.38	17.59	16.96	14.83	12.97	11.63	13.87	13.16	14.21
March 1	19.63	16.80	17.21	16.28	14.86	12.91	11.49	14.18	13.22	14.22
April 1	18.79	17.16	17.38	15.92	13.68	13.18	11.58	13.57	13.28	13.87
May 1	17.97	17.47	17.48	16.95	12.40	13.59	11.60	13.55	13.64	14.27
June 1	17.25	17.56	18.32	17.01	12.21	13.68	10.82	13.93	13.90	14.31
July 1	17.38	17.56	18.48	16.56	12.46	14.21	13.06	14.06	14.00	14.36
August 1	17.39	18.12	18.22	16.47	12.41	14.02	13.52	13.98	14.10	14.24
September 1	17.13	18.40	18.22	16.26	12.21	13.65	14.00	13.89	13.78	14.21
October 1	16.81	18.70	18.32	15.93	12.34	12.46	14.45	13.55	13.42	14.07
November 1	16.72	18.05	17.84	15.41	12.32	13.04	14.30	11.92	13.46	13.99
December 1	16.71	18.39	17.51	14.96	12.89	12.96	14.17	12.43	13.69	13.97
Average	18.01	17.63	17.91	16.33	13.09	13.30	12.76	13.60	13.55	14.11

Comparison of Net Service-Station Prices January 1, 1936, and January 1, 1937

Atlantic and New England States

	Jan. 1 1936	Jan. 1 1937
Portland, Me.	13.5	13.5
Burlington, Vt.	15.0	13.4
Hartford, Conn.	13.5	12.6
Springfield, Mass.	13.0	12.8
New York, N. Y.	11.8	13.0
Philadelphia, Pa.	13.5	12.5
Providence, R. I.	13.0	12.3
Newark, N. J.	13.3	12.0
Baltimore, Md.	13.0	12.5
Dover, Del.	13.5	12.5
Washington, D. C.	13.0	12.5
Average	13.3	12.6

Central

	Jan. 1 1936	Jan. 1 1937
Fargo, N. Dak.	14.9	15.1
Huron, S. Dak.	14.4	14.6
Wichita, Kans.	12.4	12.6
Omaha, Neb.	13.9	14.1
Tulsa, Okla.	13.0	15.0
Dallas, Tex.	12.0	12.0
Little Rock, Ark.	13.5	13.0
Kansas City, Mo.	12.9	13.1
Des Moines, Iowa	13.3	13.5
Duluth, Minn.	14.3	14.5
Minneapolis, Minn.	13.9	14.1
Milwaukee, Wis.	11.8	14.0
Chicago, Ill.	12.0	13.2
Peoria, Ill.	11.5	13.7
Detroit, Mich.	11.5	12.5
Indianapolis, Ind.	14.4	14.4
Cleveland, Ohio	14.0	14.5
Average	13.2	13.8

Southeastern

	Jan. 1 1936	Jan. 1 1937
Norfolk, Va.	12.9	13.5
Charleston, W. Va.	13.8	14.3
Louisville, Ky.	14.5	14.6
Memphis, Tenn.	14.0	14.0
Atlanta, Ga.	16.0	15.5
Charlotte, N. C.	14.7	14.9
Charleston, S. C.	13.0	13.5
Jackson, Miss.	14.0	15.0
Birmingham, Ala.	15.5	15.0
New Orleans, La.	13.5	13.0
Jacksonville, Fla.	13.0	13.0
Average	14.1	14.1

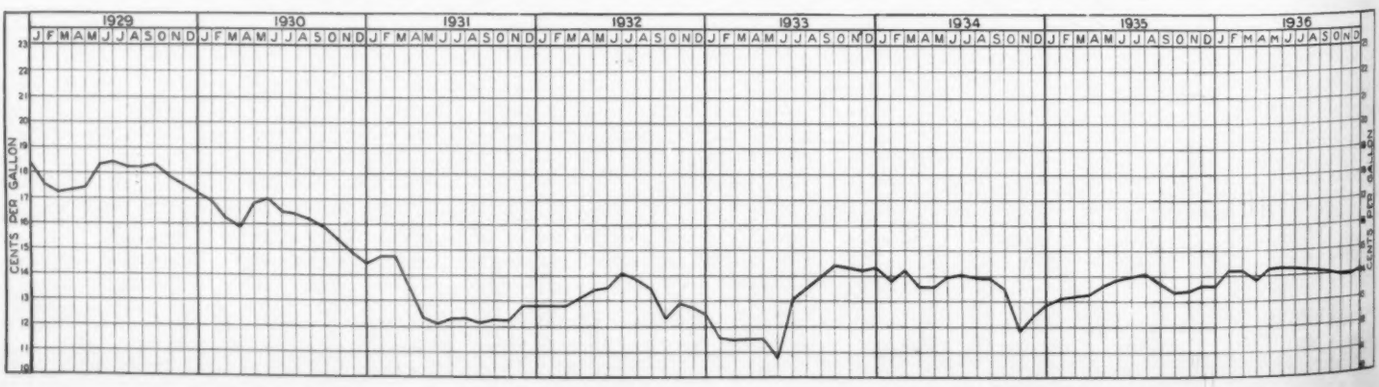
Midwestern

	Jan. 1 1936	Jan. 1 1937
Helena, Mont.	17.5	18.5
Boise, Idaho	18.5	18.5
Casper, Wyo.	15.5	16.5
Reno, Nev.	14.0	15.5
Salt Lake City, Utah	13.0	13.0
Denver, Colo.	15.0	16.0
Phoenix, Ariz.	14.0	15.5
Albuquerque, N. Mex.	15.5	16.5
Average	15.3	16.4

Western Coast

	Jan. 1 1936	Jan. 1 1937
San Francisco, Calif.	12.0	14.0
Portland, Ore.	12.5	14.5
Seattle, Wash.	12.5	14.5
Average	12.3	14.3

Trend of Gasoline Service-Station Prices, Exclusive of Taxes, in 50 Representative Cities Throughout the United States



50 cities appearing there were 30 paying more on January 1, 1937, than on the preceding January 1; 15 were obtaining gasoline at a lower price, and in the remaining five cities the same price prevailed on both January 1, 1936, and 1937.

The highest station price in effect on January 1, 1937, including taxes, was 25 cents at Twin Falls, Idaho. Billings, Helena and Great Falls, Mont., were next in line with a price of 24.5 cents, including a tax of 6 cents per gallon. The city having the lowest price on January 1, 1937, was Providence, R. I. Here the unusually low price of 15.3 cents prevailed, and during the latter part of October and early November motorists in Providence were able to purchase a regular grade motor fuel for 14.5 cents, including all taxes.

In the three cities used as representative of the western coast, Portland, San Francisco and Seattle, an advance of 2 cents per gallon is shown between the January, 1936, and January 1, 1937, prices. In the case of these three cities, when the year opened the Western Coast was suffering from over production of crude oil and resulting deranged refinery and service-station prices. This situation remained the same all through January and February. Then on March 3, station prices were lowered still further by a 2.5-cent general decrease. Thus for a month San Francisco motorists were able to buy gasoline for 13.5 cents.

In contrast to the advance in West Coast station prices, the Atlantic and New England states group shows a general decrease in prices. With the exception of New York City the prices at all points in this area declined during the year, the average for the area being .7 cent lower on January 1, 1937 than on January 1, 1936.

Reference to the table shows that the average price of the southeastern states was the same on both dates despite the many changes in prices at cities listed in this area. In the central states which includes the Mid-Continent and the huge Chicago marketing area, the average price advanced from 13.2 cents per gallon to 13.8 cents on January 1, 1937.

There were only two tax changes in the list of cities during the year, the 1-cent decrease in state taxes in New York being offset by a 1-cent tax increase in parish taxes at New Orleans.

Gasoline Service Station Prices in Effect During 1936, Exclusive of Taxes, in 50 Representative Cities, with Price Changes and Dates

Gasoline taxes in effect January 1, 1936, and January 1, 1937

	Price Jan. 1 1936	Price changes in first six months						Price changes in second six months					Price Jan. 1 1937	Tax Jan. 1 1936	Tax Jan. 1 1937
Birmingham, Ala.	15.5	1/11 14.5	1/21 15.0	5/7 14.0	5/21 15.0	5/29 14.0	....	7/15 15.0	....	....	....	....	15.0	8.0	8.0
Phoenix, Ariz.	14.0	3/3 11.5	4/1 14.0	4/13 16.0	....	....	....	10/18 15.5	....	....	....	....	15.5	6.0	6.0
Little Rock, Ark.	13.5	1/17 14.0	....	....	....	....	....	9/11 13.5	13.0	....	....	....	13.0	7.5	7.5
San Francisco, Calif.	12.0	3/3 9.5	4/1 12.0	4/13 14.0	....	....	....	....	....	....	....	....	14.0	4.0	4.0
Denver, Colo.	15.0	1/14 16.0	3/17 14.0	4/30 15.0	5/27 16.0	....	....	....	....	....	....	....	16.0	5.0	5.0
Hartford, Conn.	13.5	1/29 14.0	5/14 13.0	6/30 12.0	....	....	....	7/17 12.5	10/13 11.9	10/14 12.4	12/29 12.6	....	12.6	4.0	4.0
Dover, Del.	13.5	1/13 14.0	3/19 12.0	....	....	....	....	8/28 12.5	....	....	....	....	12.5	5.0	5.0
Washington, D. C.	13.0	1/16 13.5	....	....	....	....	....	7/3 13.0	9/19 12.5	....	....	....	12.5	3.0	3.0
Jacksonville, Fla.	13.0	1/15 11.5	1/21 12.0	....	....	....	....	8/12 13.0	8/19 12.0	11/24 13.0	....	....	13.0	8.0	8.0
Atlanta, Ga.	16.0	2/28 15.5	....	....	....	....	....	....	....	....	....	....	15.5	7.0	7.0
Boise, Idaho	18.5	....	....	....	....	....	....	....	....	....	....	....	18.5	6.0	6.0
Chicago, Ill.	12.0	1/17 12.5	4/15 13.0	5/14 13.5	....	....	....	9/25 12.9	12/9 13.2	....	....	....	13.2	4.0	4.0
Peoria, Ill.	11.5	1/17 12.0	2/19 14.0	....	....	....	....	9/4 13.7	9/25 13.4	12/9 13.7	....	....	13.7	4.0	4.0
Indianapolis, Ind.	14.4	1/17 14.9	....	....	....	....	....	9/4 14.6	9/25 14.3	11/23 14.1	12/9 14.4	....	14.4	5.0	5.0
Des Moines, Iowa	13.3	1/17 13.8	....	....	....	....	....	9/4 13.5	9/25 13.2	12/9 13.5	....	....	13.5	4.0	4.0
Wichita, Kans.	12.4	1/17 12.9	....	....	....	....	....	8/22 11.0	9/4 12.6	9/25 11.0	12/9 11.3	12/19 12.6	12.6	4.0	4.0
Louisville, Ky.	14.5	1/21 15.0	4/21 14.0	5/22 15.0	....	....	....	9/29 14.0	....	....	....	....	14.0	6.0	6.0
New Orleans, La.	13.5	1/18 14.0	2/15 12.5	3/10 13.0	....	....	....	....	....	....	....	....	13.0	9.0	10.0
Portland, Me.	13.5	1/20 14.5	1/20 14.0	1/31 13.0	....	....	....	9/1 13.5	10/13 13.0	12/28 13.3	....	....	13.3	5.0	5.0
Baltimore, Md.	13.0	1/16 13.5	....	....	....	....	....	9/18 12.5	....	....	....	....	12.5	5.0	5.0
Springfield, Mass.	13.5	....	....	....	....	....	....	7/25 12.5	12/29 12.8	....	....	....	12.8	4.0	4.0
Detroit, Mich.	11.5	1/17 12.0	5/29 12.5	6/23 13.0	....	....	....	11/12 12.5	....	....	....	....	12.5	4.0	4.0
Duluth, Minn.	14.3	1/17 14.8	....	....	....	....	....	9/4 14.5	9/25 14.2	12/9 14.5	....	....	14.5	4.0	4.0
Minneapolis, Minn.	13.9	1/17 14.4	..	....	....	....	....	9/4 14.1	9/25 13.8	12/9 14.1	....	....	14.1	4.0	4.0
Jackson, Miss.	14.0	1/21 14.5	1/30 15.0	....	....	....	....	....	....	....	....	....	15.0	7.0	7.0
Kansas City, Mo.	12.9	1/17 13.4	....	....	....	....	....	9/4 13.1	9/25 12.8	12/9 13.1	....	....	13.1	4.0	4.0
Helena, Mont.	17.5	1/17 18.5	....	....	....	....	....	....	....	....	....	....	18.5	6.0	6.0
Omaha, Neb.	13.9	1/17 14.4	....	....	....	....	....	9/5 14.1	9/25 13.8	12/5 14.1	....	....	14.1	6.0	6.0
Reno, Nev.	14.0	3/3 11.0	4/1 13.5	4/13 15.5	....	....	....	....	....	....	....	....	15.5	5.0	5.0
Newark, N. J.	13 3	1/16 13.8	2/5 12.8	2/20 13.8	6/10 13.5	....	....	7/10 12.5	10/1 12.0	....	....	....	12.0	4.0	4.0
Albuquerque, N. Mex.	15.5	1/14 16.5	4/7 14.0	....	....	....	....	9/2 14.5	....	....	....	....	14.5	6.5	6.5
New York City, N. Y.	11.8	1/18 13.5	1/29 13.7	2/20 14.2	....	....	....	7/31 14.0	9/16 12.7	12/28 13.0	....	....	13.0	5.0	4.0
Charlotte, N. C.	14.7	1/16 15.2	5/18 14.9	....	....	....	....	....	....	....	....	....	14.9	7.0	7.0
Fargo, N. Dak.	14.9	1/17 15.4	....	....	....	....	....	9/4 15.1	9/25 14.8	12/9 15.1	....	....	15.1	4.0	4.0
Cleveland, Ohio	14.0	1/15 14.5	....	....	....	....	....	....	....	....	....	....	14.5	5.0	5.0
Tulsa, Okla.	13.0	1/17 14.0	....	....	....	....	....	12/14 15.0	....	....	....	....	15.0	5.0	5.0
Portland, Ore.	12.5	3/3 10.0	4/1 13.5	4/13 14.5	....	....	....	....	....	....	....	....	14.5	6.0	6.0
Philadelphia, Pa.	13.5	1/13 14.0	3/27 12.0	5/2 12.5	....	....	....	10/20 12.0	11/17 11.0	12/12 12.5	....	....	12.5	5.0	5.0
Providence, R. I.	13.0	1/17 12.0	3/19 12.5	6/11 13.0	6/15 12.5	....	....	10/13 11.5	11/13 12.0	12/29 12.3	....	....	12.3	3.0	3.0
Charleston, S. C.	13.0	1/16 13.5	....	....	....	....	....	....	....	....	....	....	13.5	7.0	7.0
Huron, S. Dak.	14.4	1/17 14.9	....	....	....	....	....	9/4 14.6	9/25 14.3	12/9 14.6	....	....	14.6	5.0	5.0
Memphis, Tenn.	14.0	1/18 14.5	....	....	....	....	....	9/28 14.0	....	....	....	....	14.0	8.0	8.0
Dallas, Tex.	12.0	1/13 13.0	2/24 12.0	3/28 13.0	4/22 12.0	5/31 13.0	6/20 12.0	7/9 13.0	7/18 12.0	....	....	....	12.0	5.0	5.0
Salt Lake City, Utah	13.0	1/15 15.0	1/30 18.0	....	....	....	....	....	....	....	....	....	18.0	5.0	5.0
Burlington, Vt.	15.0	1/20 15.5	5/20 15.0	6/12 15.5	....	....	....	10/13 13.2	12/28 13.4	....	....	....	13.4	5.0	5.0
Norfolk, Va.	12.9	1/16 13.5	....	....	....	....	....	....	....	....	....	....	13.5	6.0	6.0
Seattle, Wash.	12.5	3/3 10.0	4/1 12.5	4/13 14.5	....	....	....	....	....	....	....	....	14.5	6.0	6.0
Charleston, W. Va.	13.8	1/16 14.3	....	....	....	....	....	....	....	....	....	....	14.3	5.0	5.0
Milwaukee, Wis.	11.8	1/17 12.8	3/12 13.3	....	....	....	....	9/26 13.7	12/9 14.0	....	....	....	14.0	5.0	5.0
Casper, Wyo.	15.5	1/17 16.5	....	....	....	....	....	....	....	....	....	....	16.5	5.0	5.0
Average price	13.70	....	....	....	....	....	....	....	....	....	....	....	14.09	5.38	5.38

AVERAGE DOMESTIC AND EXPORT REFINED OIL PRICES OVER THE PAST THREE YEARS

	1936					1935					1934				
	Av. pr. for yr.	High	Low	1st 6 mos.	2nd 6 mos.	Av. pr. for yr.	High	Low	1st 6 mos.	2nd 6 mos.	Av. pr. for yr.	High	Low	1st 6 mos.	2nd 6 mos.
GASOLINES—															
Oklahoma (Group 3):															
U. S. Motor grades:															
Regular, 68-70 octane	.0588	.06⅛	.05½	.0601	.0575	.0492	.05⅝	.03¼	.0422	.0551	.0444	.04¾	.03⅝	.0447	.0440
Third grade, below 62 octane	.0485	.05¼	.04½	.0498	.0472	.0441	.04¾	.03¼	.0407	.0475	.0363	.04¼	.02½	.0370	.0355
60-62 400 (no octane rating)	.0485	.05¼	.04½	.0498	.0472	.0443	.04¾	.03⅜	.0410	.0475	.0372	.04⅜	.02⅝	.0384	.0359
64-66 375	.0502	.05⅜	.04⅞	.05¼	.0491	.0459	.04⅞	.03¾	.0431	.0487	.0410	.04½	.03½	.0421	.0399
North Texas:															
U. S. Motor, below 62 octane	.0485	.05¼	.04⅝	.0496	.0474	.0442	.04¾	.03¼	.0409	.0475	.0361	.04⅛	.02¾	.0365	.0356
64-66 375	.0506	.05¼	.04⅞	.0521	.0492	.0459	.04⅞	.03⅝	.0430	.0487	.0403	.04⅝	.03⅜	.0418	.0387
Pennsylvania:															
U. S. Motor, below 60 octane	.0565	.05⅞	.05¼	.0562	.0568	.0521	.06½	.04	.0496	.0546	.0519	.05¾	.04½	.0510	.0528
California:															
54-58, U. S. Motor	.0602	.07	.03¾	.0504	.0700	.0552	.07	.03½	.0672	.0434	.0624	.08	.04	.0555	.0692
New York (Bayonne, N. J.):															
U. S. Motor, below 65 octane	.0673	.07	.06½	.0688	.0658	.0594	.06½	.05½	.0578	.0610	.0588	.06¼	.05½	.0591	.0585
65 octane and above	.0698	.07¼	.06¾	.0713	.0683	.0619	.06¾	.05¾	.0602	.0635	.0613	.06½	.05¾	.0616	.0610
Gulf Coast (domestic):															
U. S. Motor, below 65 octane	.0581	.06	.05⅜	.0576	.0585	.0521	.05⅜	.05	.0515	.0527	.0505	.05⅞	.04¼	.0514	.0496
U. S. Motor, 65 octane and above	.0600	.06⅛	.05⅝	.0596	.0604	.0541	.05⅝	.05¼	.0530	.0552	.0536	.06	.05	.0544	.0528
NAPHTHAS—															
Pennsylvania:															
50-52 450 (blending)	.0550	.05¾	.05⅛	.0550	.0551	.0489	.05⅞	.04	.0466	.0512	.0462	.05⅜	.04⅜	.0448	.0476
NATURAL GASOLINES—															
Oklahoma (Group 3):															
26-70	.0361	.04¾	.02½	.0310	.0411	.0320	.04¼	.02	.0287	.0353	.0260	.03¾	.01¼	.0224	.0295
18-55	.0431	.05⅝	.03	.0375	.0487	.0404	.05	.02¾	.0355	.0452	.0318	.04⅜	.01¾	.0275	.0361
California:															
75-85 375-390	.0617	.07	.04¾	.0533	.0700	.0506	.06½	.04½	.0551	.0462	.0575	.06½	.04½	.0515	.0635
KEROSENE—															
Oklahoma (Group 3):															
41-43 water white	.0365	.04½	.03⅛	.0394	.0336	.0353	.03⅞	.03¼	.0374	.0331	.0322	.03⅝	.03	.0330	.0314
North Texas:															
41-43 water white	.0369	.04⅜	.03⅛	.0397	.0341	.0343	.03⅞	.03¼	.0360	.0325	.0310	.03½	.02⅞	.0313	.0307
Pennsylvania:															
45 water white	.0504	.05½	.04½	.0529	.0478	.0467	.04⅞	.04¼	.0467	.0466	.0448	.05⅜	.04	.0451	.0445
California:															
38-40 high burning test	.0339	.04	.03¼	.0331	.0347	.0409	.04¾	.03¼	.0456	.0363	.0458	.04¾	.04¼	.0441	.0475
New York (Bayonne, N. J.):															
41-43 water white	.0486	.05¼	.04⅝	.0502	.0470	.0518	.05¼	.04⅝	.0549	.0487	.0529	.05¾	.05	.0540	.0518
Gulf Coast:															
41-43 water white	.0400	.04¾	.03⅞	.0405	.0396	.0433	.04¾	.04	.0440	.0425	.0440	.04¾	.04¼	.0449	.0449
FURNACE OILS AND TRACTOR FUELS—															
Oklahoma (Group 3):															
32-36, No. 2 Straw	.0313	.03⅝	.02¾	.0322	.0304	.0283	.03⅛	.02⅝	.0283	.0282	.0268	.03⅛	.02⅜	.0268	.0267
38-40, No. 1 straw	.0329	.03⅝	.02⅞	.0342	.0316	.0308	.03¼	.02⅝	.0319	.0296	.0273	.03¼	.02½	.0277	.0268
38-42, No. 1 prime white	.0343	.03⅞	.03	.0360	.0326	.0324	.03⅝	.03	.0334	.0312	.0292	.03⅜	.02½	.0289	.0294
New York (Bayonne, N. J.):															
No. 1	.0484	.05¼	.04½	.0503	.0466	.0513	.06	.04⅝	.0540	.0486	.0527	.05½	.05	.0536	.0517
No. 4	.0389	.04½	.03½	.0418	.0361	.0397	.04¾	.03½	.0428	.0366	.0436	.04¾	.04	.0417	.0454
GAS OIL, DIESEL OIL AND FUEL OIL—															
Oklahoma (Group 3):															
U.G.I. gas oil	.0251	.02⅞	.02⅛	.0241	.0261	.0233	.02⅝	.02	.0230	.0235	.0201	.02⅜	.01¼	.0214	.0187
Below 18 fuel oil, industrial	.6619	.70	.60	.6288	.6950	.6232	.65	.60	.6130	.6333	.5930	.62½	.50	.5750	.6100
California:															
24 plus diesel*	1.03	1.10	1.00	1.07	1.00	1.084	1.150	1.050	1.110	1.057	1.032	1.10	.90	1.00	1.063
Gulf Coast:															
28-30 diesel	1.54	1.70	1.50	1.59	1.50	1.700	1.700	1.700	1.700	1.700	1.779	1.80	1.70	1.80	1.758
New York (Bayonne, N. J.):															
28-30 diesel (lighterage 6¼ cents bbl.)	1.65	1.65	1.65	1.65	1.65	1.761	1.89	1.65	1.872	1.650	1.939	1.95	1.89	1.948	1.922
Bunker C (New York harbor)	1.08	1.15	1.05	1.05	1.11	1.067	1.15	.95	1.150	.983	1.242	1.30	1.15	1.258	1.225
NEUTRAL OILS—															
Oklahoma (Group 3):															
200, 3 color, 15-20 cold test	.1043	.10¾	.09½	.1075	.1012	.1075	.10¾	.10¾	.1075	.1075	.0994	.10¾	.08	.0912	.1075
Pennsylvania:															
200, 3 color, 10 pour test	.2281	.24½	.21½	.2269	.2294	.2579	.30	.22½	.2754	.2404	.0291	.30½	.26	.290	.291
Gulf Coast:															
200, 3 pale oil	.0672	.07	.06½	.0694	.0650	.0722	.07¼	.07	.0743	.0700	.0742	.07¾	.06¼	.0740	.0745
200, 5-6 red oil	.0675	.07	.06½	.0694	.0655	.0700	.07	.07	.0700	.0700	.0665	.07¼	.06½	.0640	.0689
California:															
200, 2½-3 pale	.0646	.07¼	.06¼	.0667	.0625	.0910	.12½	.07¼	.1077	.0743	.1954	.23	.12½	.2300	.1608
BRIGHT AND STEAM REFINED STOCKS—															
Oklahoma (Group 3):															
150-160, zero to 10, D color	.1769	.18½	.17	.1756	.1783	.1496	.17	.13½	.1400	.1592	.2030	.24½	.13½	.2370	.1670
631 green (treated), S.R.	.1267	.14	.09½	.1179	.1354	.0872	.09½	.07½	.7904	.9500	.1317	.15	.08½	.1446	.1180
Pennsylvania:															
600 S.R.	.1238	.13½	.09½	.1157	.1320	.0891	.10½	.07½	.0824	.0957	.1476	.19½	.08½	.1829	.1125
Bright stock, 10 pour test	.2361	.24½	.22	.2298	.2425	.1990	.22	.17½	.1883	.2096	.2540	.30	.19½	.2900	.2170
WAX—															
Oklahoma (Group 3):															
124-126 (crude scale)	.0245	.02¾	.02¼	.0245	.0245	.0224	.03⅛	.02	.0236	.0212	.0346	.03¾	.03⅛	.0365	.0322
New York (Bayonne, N. J.):															
125-127 (a.m.p.)	.0455	.0455	.0453	.0455	.0455	.0428	.040	.045	.0426	.0430	.0424	.046	.042	.0428	.0429
EXPORT PRICES—															
Gasoline—Gulf Coast:															
U. S. Motor	.0528	.05½	.05	.0531	.0525	.0473	.05¾	.04⅜	.0450	.0495	.0433	.05¼	.03¾	.0455	.0410
64-66 375	.0560	.05¾	.05⅜	.0567	.0554	.0510	.05⅞	.04¾	.0493	.0526	.0475	.05¾	.04¼	.0498	.0462
Los Angeles, Calif.:															
U. S. Motor, 53-55 gr., no octane rating	.0450	.04¾	.04	.0429	.0470	.0400	.04	.04	.0400	.0400	.0405	.04½	.04	.0410	.0400
U. S. Motor, 65 octane	.0475	.05	.04¼	.0454	.0495	.0433	.04½	.04¼	.0434	.0425	.0455	.05	.04½	.0460	.0450
Lubricants—New York (f.a.s. in bbls.):															
600 S.R. unfiltered	.1898	.20	.16½	.1813	.1984	.1556	.14	.16½	.1462	.1650	.2153	.26	.14	.2521	.1785
Bright stock, No. 8 color	.2749	.29½	.26	.2633	.2865	.2355	.26	.21	.2223	.2487	.3019	.36	.22	.3410	.2627

*1935 and 1934 prices are those on 27 plus diesel.

Refined Prices Advance in 1936 With Cylinder Stocks Leading the Field

By D. H. STORMONT

The average prices for the various refined products during 1936 were with but few exceptions higher than those of 1936. Neutral oils declined in price and the outstanding performers were cylinder stocks.

Due to a heavy demand for bright stocks and steam-refined stocks, prices on these two grades in both Pennsylvania and Group 3 began an upward trend early in the year, reached a peak in midyear and since then have lost only a small portion of the gain. The average prices for the year of these two products in Oklahoma were a fraction less than 3 cents higher than those of 1935. In Pennsylvania the averages were approximately 4 cents higher.

Cylinder stocks were the subject of unusual demand during the first months of the year, due partly to a good export movement to European countries.

NEUTRAL OILS DECLINE

Notwithstanding a brisk demand and modern car lubrication requirements, neutral oils recorded a lower average price than in 1935. A study of the price table on the following page shows that outside of Group 3 markets, the 1936 average prices were much lower than those of 1934. In contrast with this decline in price, the volume of neutrals used in the manufacturing of lubricants has greatly increased. A few years ago approximately 60 per cent of the volume of lubricants moved were bright stocks and steam-refined stocks, neutrals accounting for the remainder. Now the use of lower-viscosity oils for automobile lubrication has changed this ratio, almost inverting it.

Several factors contributed to the poor showing made by the neutral-oil group. Many refiners no longer blend cylinder stocks and neutrals in manufacturing lubricants, but through vacuum-distillation equipment and subsequent treating produce a finished lubricant of the required viscosity. There are now some 4,000,000 trucks and buses on the road which require lubricants of heavier viscosity, thus a higher per cent of cylinder stocks is used. Also some marketers are of the opinion that there is an overproduction of this type of material and that all of it cannot be absorbed despite increased consumption.

MOTOR FUELS HIGHER

Although the average price for the year was higher throughout the United States, gasoline east of California failed to maintain the strength manifested in the early part of 1936. Following advances in crude oil prices early in the year, gasoline exhibited unusual strength despite the cold lingering winter, spring floods and dust storms, which curbed consumption and caused gasoline stocks to mount rapidly. As the heavy consuming season advanced into July motor fuels lost their buoyancy, and in August quotations began to decline.

The trend in refinery gasoline, excepting the West Coast, during 1936 was in some respects opposite to that in 1935. In the latter year gasoline tankcar prices at refineries were low as the year opened and gathered strength as the year progressed. After reaching a top of 6⅛ cents for regular 68-70-octane gasoline in Oklahoma, quotations fell off one-eight cent during the latter part of February and then held their own until late August when further decreases were registered. During the latter months of 1936 quotations were advanced one-quarter cent, but as the year closed gasoline still lacked the firmness which characterized it at the close of 1935.

The high level at which refinery crude runs to stills were held throughout the year no doubt was a factor in keeping the motor fuel market from settling down to a stabilized basis. The high refining rate was reflected throughout the year in the large stocks of motor fuel, which at the end of the year were some 6,000,000 bbls. higher than at that time in 1935. The large stocks to some extent exerted a weakening influence.

While motor fuels were having their troubles during the earlier part of the year, due to prolonged cold weather, the same factor served to build up an almost unprecedented demand for the furnace oils, which had a most successful year in both prices and volume of movement. Since it has been estimated that there were some 100,000 more furnaces using oils at the last of 1936 than at the beginning, furnace oils should continue to increase in importance and in the future become even more competitive with other fuels. The average Group 3 price for the various grades was approximately .2 cents higher for 1936 than in 1935.

NATURAL GASOLINE ADVANCES

Natural gasoline was another product showing a higher average price for 1936 than in the preceding year. In Oklahoma and North Texas the average was about .4 cent higher for the 26-70 grade and .3 cent higher for the 18-55 grade. In California natural gasoline recorded an even more pronounced increase, the price for 1936 averaging 1.11 cents higher than in 1935. The market in that area became definitely tight during the early summer months, the situation becoming so critical that some natural was shipped from Gulf Coast ports, via the Canal, to the West Coast.

One factor influencing the price of natural gasoline in the Mid-Continent was the closing down of stripper plants in the Texas Panhandle, removing 250,000 to 300,000 gallons daily from the market. The trend to more volatile motor fuels also contributed to establishing a satisfac-

(Continued on Page 75)

DEPARTMENT OF GEOGRAPHY
THE UNIVERSITY OF NEBRASKA

AVERAGE YEARLY PUBLISHED PRICES ON MOST IMPORTANT REFINERY PRODUCTS, 1927 TO 1937

(Price in Tankcar at Plant)

OKLAHOMA

	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927
U. S. Motor gasoline, per gal. (below 62 octane)	$.0485	$.0441	$.0363	$.0311	$.0392	$.0345	$.0634	$.0775	$.0795	$.0667
Natural gasoline, 26-70 (AA grade), per gal.	.0361	.0320	.0260	.0290	.0222	.03	.0524	.0683	.0734	.0575
41-43 water white kerosene, per gal.	.0365	.0353	.0322	.0279	.0315	.0231	.0358	.0517	.0517	.0461
Below 18 fuel oil, per bbl.	.6619	.6232	.5930	.3899	.3250	.2904	.5225	.5260	.6298	.8889
U.G.I. gas oil, per gal.	.0251	.0233	.0201	.0146	.0146	.0127	.0227	.0265	.0247	.0299
200 vis. neutral, 3 color, per gal. (15-20 cold test)	.1043	.1075	.0994	.0845	.0834	.0924	.1059	.0966	.0947	.1032
124-126 wax, per lb.	.0245	.0224	.0346	.0253	.0170	.0174	.0216	.0321	.0394	.0294
150-160 D color bright stock, per gal.	.1769	.1496	.2030	.1852	.1837	.1631	.2977	.3368	.2310	.....
Crude (36 A.P.I. gravity), per barrel	1.10	1.00	1.00	.62	.88	.63	1.23	1.37	1.31	1.38

CALIFORNIA

	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927
U. S. Motor gasoline, per gal. (below 60 octane)	$.0602	$.0552	$.0624	$.0523	$.0546	$.0510	$.0806	$.0849	$.0919	$.0873
Natural gasoline, 75-85, 375 e.p., per gal.	.0617	.0506	.0575	.0462	.0447	.0418	.0712	.0803	.0726	.003
38-40 kerosene, per gal.	.0339	.0409	.0458	.0384	.0398	.0425	.0455	.0569	.0611	.07
27 plus diesel*	1.03	1.084	1.0320	.8406	.7432	.7510	.8365	.9000	1.1500	1.1500
Crude (25 A.P.I. gravity, Signal Hill), per barrel	.997	.85	.94	.84	.83	.76	1.16	1.105	.96	1.00

PENNSYLVANIA

	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927
U. S. Motor gasoline, per gal. (below 60 octane)	$.0565	$.0521	$.0519	$.0505	$.0568	$.049	$.0737	$.0905	$.0982	$.09
45 water white kerosene, per gal.	.0504	.0467	.0448	.0446	.0451	.04	.0501	.0651	.0635	.0646
Bright stock, 10-15 pour test, per gal.	.2361	.1990	.2540	.2407	.2466	.2094	.3373	.4745	.3186	.3326
Crude (in National Transit Lines), per barrel	2.42	2.17	2.47	1.86	1.88	1.81	2.55	3.69	2.98	2.87

*1936 price is on 24 plus diesel.

Long Pipe Lines and Many Extensions Constructed; New Pools Get Outlets

Important pipe line construction was carried on in 1936 in nearly all the producing states west of Pennsylvania. Long lines were laid in California and Texas and a great deal of reconditioning, looping, and enlarging was done to handle the increased output of oil and in connecting new fields with markets for their product.

Louisiana

At the beginning of 1936 Standard Oil Co.'s branch line from Ida, La., was the only trunk line outlet for the Rodessa field, in Louisiana and Texas, but six other outlets were provided during the early months of the year.

Gulf Pipe Line Co. extended its trunk line from the Caddo field into Rodessa by laying 20 miles of 6-inch from the Potter Point station into the Cass County portion of the field.

East Texas Refining Co. laid an 8-inch welded line from Rodessa to its refinery at Longview. This line was later sold to United Gas.

Magnolia Petroleum constructed 23 miles of 8-inch into Rodessa to connect with its main trunk line into Beaumont at Dixie.

The Texas Co. built a 15-mile 6-inch line extension into Rodessa from its Oil City trunk line to Port Arthur.

Shortly thereafter Arkansas-Louisiana Gas Co. laid an 8-inch welded line from Oil City into Rodessa, thereby connecting the field with its Bossier City refinery.

Shoreline Oil Co. laid a 4-inch line from its refinery at Lewis to Rodessa about midyear.

All these Rodessa lines were built during the first half of the year.

During the latter part of the year Atlas Pipe Line Co. completed construction of a 4-mile line from the newly discovered Sligo oil field to a loading rack nearby.

Southwest Texas

With the exception of two lines joining the Government Wells area of Duval County with tidewater at Corpus Christi, the pipe lines laid in Southwest Texas during 1936 consisted mainly of short lines giving new production an outlet to trunk lines and deep-water terminals. Completed early in 1936, the 72-mile, 5½-inch line of the Crude Oil Pipe Line Co. gave the Loma Novia and other fields of the Government Wells area an outlet to deep water at Corpus Christi. At the end of the year, construction was well under way on a second line to join the rapidly developed fields of that section with a Corpus Christi terminal. The Magnolia Pipe Line Co. is laying an 85-mile, 8-inch welded line from the Tilden station of the Southwest Texas trunk line to Corpus Christi. This will relieve the overloaded condition of the company's Luling line which serves practically all important fields in the Laredo district.

Several short lines were laid in the Corpus Christi area, connecting the local Saxet, Saxet Heights and other fields to refineries and shipping terminals at the harbor. Potter Pipe Line Co. operates a new 10-mile line consisting of 6- and 8-inch pipe to move production from the Saxet, Baldwin and Saxet Heights fields to Corpus Christi. Another Saxet line was laid by the Texas Pipe Line Co. to the company's terminal 8 miles distant. A 6-inch line paralleling the Texas pipe line was laid by the Southern Minerals Corp., and the Republic Pipe Line Co. laid a 4-inch line along the same right of way.

The Clara Driscoll field was given outlet at Corpus Christi harbor by the Crude Oil Pipe Line Co. in a 4-inch line.

Humble Pipe Line Co., in the Corpus Christi area, looped its trunk line from the Viola station to Ingleside, adding a spur line from the new Flour Bluff field to Viola, and including the Plymouth and Taft fields of San Patricio County in its Refugio system.

Early in 1936, the Sinton Pipe Line Co., controlled by the Texas Co., laid a 6-inch line from the Plymouth field to Corpus Christi, and extended the project to the Refugio field, connecting the Greta and other fields of the vicinity directly with deep water. The lines to Plymouth and Refugio totaled 37 miles.

Among the smaller lines laid during the year is the Amerada Petroleum Corp. line from the Pearsall field to a railroad loading rack at Melon.

Gulf Coast

On the Texas Gulf Coast, Barnsdall Pipe Line Co. 12-mile 3-inch welded oil line from the Placedo field to the Wood-Moore refinery at Port Lavaca; Texas Pipe Line Co.'s 6-inch welded oil line from the Pickett Ridge and Withers fields in Wharton County to the company's pump station at Markham in Matagorda County, a distance of 15 miles. Bennett Pipe Line Co. laid a 4-inch welded oil line to its refinery at Texas City and a 6-inch welded gas line from the south extension area of the Dickinson field in Galveston County.

Stanolind Pipe Line Co.'s 20-mile 8-inch welded oil line from the Hastings field in Brazoria County to the Pan American Refining Co. at Texas City is under construction. From the Nome field in Jefferson County, Sun Pipe Line Co. is completing the construction of a 20-mile 6-inch welded oil line to terminal facilities at Beaumont. Other short lines were laid from the Segno field in Polk County, the Silsbee field in Hardin County and from the Cotton Lake field, in Chambers County.

Coastal Louisiana

Coastal Louisiana which heretofore has relied on water transportation for the movement of its oil, received several lines. From the Tepetate field in Acadia Parish, Continental Oil Co. laid an oil and gas line to Lake Charles, a distance of 50 miles. The oil line was 6⅝ inches and the gas line 8⅝ inches. Both were welded lines and were laid in one ditch. From the Garden Island field in Plaquemines Parish, Texas Co. constructed 9 miles of 6-inch welded oil line to Pilot Point. The Gillis field in Calcasieu Parish received its first pipe line outlet by the construction of 14½ miles of 6-inch welded oil line to the Union Sulphur Co.'s Rose Bluff tank farm near Lake Charles.

North Texas

Following the discovery and development of the high gravity oil field 3 miles southwest of Gainesville in Cooke County, three small skimming plants were erected on the outskirts of that city to process crude from the field, and small connecting lines were laid to run the oil to the plants.

The Texas Pipe Line Co. extended its line to connect with the Bryson area in Jack County, laying gathering lines to take the oil from the many wells drilled there in 1936.

West Texas

In West Texas more gathering lines had to be put down by the crude purchasing companies to tie into the many new wells completed.

Shell Pipe Line Corp. laid 75 miles of new 10-inch line, the longest piece of construction carried in the district in 1936, to connect its Winkler County station with its station at McCamey, this line displaces two 6-inch lines laid about eight years ago.

The Gulf Oil Corp.'s pipe line division laid 11 miles of gathering system into the recently opened Estes field in Ward County to connect with its pump station near Monahans. The Paso Tex Pipe Line Co. was reported planning a connecting line to connect its 8-inch main line at Kermit with the California Co.'s producing properties in Ward County.

Central Texas

The only construction in the Central Texas or Ranger district was the laying of gathering lines in western Shackelford County by the Humble Oil & Refining Co. and tying in of its main line to the Hawley pool in Jones County.

The Atlantic Pipe Line Co.'s gathering lines in the Overall field were taken over by a group of independents, these lines were put to use to pipe oil to the Coleman refinery, 2 miles from the pool.

East Texas

During the past 12 months the East Texas district saw more pipe line work started and completed than it has witnessed since 1932 when several major companies laid trunk lines from the East Texas field to Gulf Coastal outlets. Another direct outlet for the field was accomplished this year when a connecting line was laid from Rusk station in Cherokee County to the Conroe field, tying in a line from the field to this station with a line from Conroe to the Houston Ship Channel. This 80 miles of 8-inch was laid by the American Liberty Pipe Line Co., which is headed by Golding & Murchison of Dallas. The company also purchased some 75 miles of oil-gathering line in the East Texas field, mostly 6-inch, and laid still more to connect with wells to supply oil for its new trunk system from that field. The Bennett Pipe Line Co. sold 75 miles of gathering line to the new firm.

The same company also completed 18 miles of 6-inch line from the recently discovery Sulphur Bluff pool in Hopkins County, to Talco, Titus County, where it connects with the Humble Pipe Line Co.'s 8-inch from that field to East Texas. Humble is to move Sulphur Bluff oil for Murchison and others to East Texas, where it will be taken over, probably to be run through the Golding & Murchison 8-inch trunk line to Houston when desired.

The longest pipe line construction work in East Texas was carried out by the Humble Pipe Line Co. this year when it converted an oil line from the East Texas field to Baytown on the Gulf, into a gasoline line, laying a large amount of pipe in this program which furnished the Humble Oil & Refining Co. a direct gasoline outlet for its two East Texas casinghead plants, one at London and the other at Kilgore. The gasoline pipe line has a daily capacity of 12,500 bbls., the main pumping station being located at the London terminus in the field.

The next longest line laid by the Humble Pipe Line Co. in the district, was 65 miles of reconditioned 8-inch screw and welded oil line from the Talco field in Titus County to connect with the company's Van-East Texas-Shreveport line at Longview in Gregg County. This line was laid to give the Talco field an outlet.

The East Texas Pipe Line Co., headed by Freeman W. Burford of Dallas, laid 55 miles of 8-inch welded line from the East Texas Refining Co.'s refinery at Longview to connect with the Rodessa field in Louisiana, the fore part of the year. A few months later the line was purchased by the United Gas Public Service Co., which is now delivering Rodessa oil to Longview from which point the Atlantic Refining Co.'s pipe line division laid a short line to connect with its station south of that city, thereby giving the Rodessa field a Gulf

Coast outlet via the East Texas field through the Atlantic's main line to Atreco.

The Shell Pipe Line Corp. and Phillips Petroleum Co. have been reported considering construction of a line from the Rodessa field to East Texas to make connection with trunk lines out of the latter field to the Gulf Coast.

The East Texas Pipe Line Co. made a survey for a proposed 8-inch gasoline line from Longview to Lorraine, La., and possibly extending it to Natchez, Miss. The first part of the proposed line would be about 40 miles in length, the latter line would be 210 miles in length. It would have a daily capacity of 15,000 bbls.

The Talco Pipe Line Co., owned by Capt. J. F. Lucey, R. W. Fair and Byrd-Frost, Inc., constructed 18 miles of 6⅝-inch oil line from the Talco field in Titus County, to the Cotton Belt Railroad at Mount Pleasant, at which place the associates are now preparing to erect a 5,000-bbl. refinery.

The Tide Water Oil Co. laid 8 miles of 2-inch distillate gathering line in the Cayuga field and also took over the Texas Pipe Line Co.'s gathering system in the field. The latter company's trunk line running near the field from North Texas, moves the Cayuga oil to the coast for Cayuga operators.

Rocky Mountains

Oil pipe line construction in the Rocky Mountain area showed some gain in 1936 as compared with the previous year.

One line in southern Colorado was nearing completion at the end of 1936. This is a 15½-mile 4½-inch O. D. line from the Gramps (Price) pool in Archuleta County, Colorado, to Chama, N. Mex., where it taps the Denver & Rio Grande Western narrow-gauge railroad. It was built by the William E. Hughes estate for an outlet for the new pool which the estate discovered in 1935 and developed in 1936. The line is being oxyacetylene welded by the lindeweld method and contract was awarded to J. H. Gates, of Denver.

A pipe line of major importance was constructed by the Illinois Pipe Line Co. from Lusk, Wyo., in Niobrara County, to Fort Laramie, in Goshen County, Wyoming, a distance of 39.7 miles. It consists of 6-inch welded pipe. It forms a connecting link between the same company's 24-mile 6-inch line from the Lance Creek field to Lusk and the Stanolind Pipe Line company's old trunk line from the Clayton tank farm near Douglas to Freeman, Mo. The 800-mile trunk line was built a number of years ago by the Sinclair Pipe Line Co. and the Standard Oil Co. of Indiana to move Salt Creek and Teapot dome crude to eastern refineries. It was out of service for a number of years except for a portion leased for the transportation of natural gas. Several millions of dollars is being spent in reconditioning the Stanolind line. The purpose of the Lusk-Fort Laramie connecting link and the rehabilitation of the trunk line is to move surplus Lance Creek crude to eastern refineries along with oil in storage at Clayton. The Clayton farm has 12,000,000 bbls. which has been in storage for a long time and this will be mixed with Lance Creek crude. The Sinclair line to Missouri when first built opened the Wyoming fields to eastern markets and did away with the differential in crude prices in the Rocky Mountain area. The new deal was made possible by the discovery of production in the Sundance sands at Lance Creek. The construction and rehabilitation work and the making of contracts between Lance Creek producers and pipe line companies and refineries restores the eastern markets to Wyoming fields. The Lusk-Fort Laramie line cost approximately $240,000. Two 55,000-bbl. tanks at Fort Laramie will be used to mix the crudes. No additional pumping stations were required to move the crude down to the trunk line. Movement of crude through the system is expected to begin this spring.

The Continental Oil Co. built a 19.8-mile 2-inch gasoline line from its natural gasoline plant in Lance Creek to Manville. It parallels the same company's 4-inch line placed in operation in 1935. The cost was $36,000.

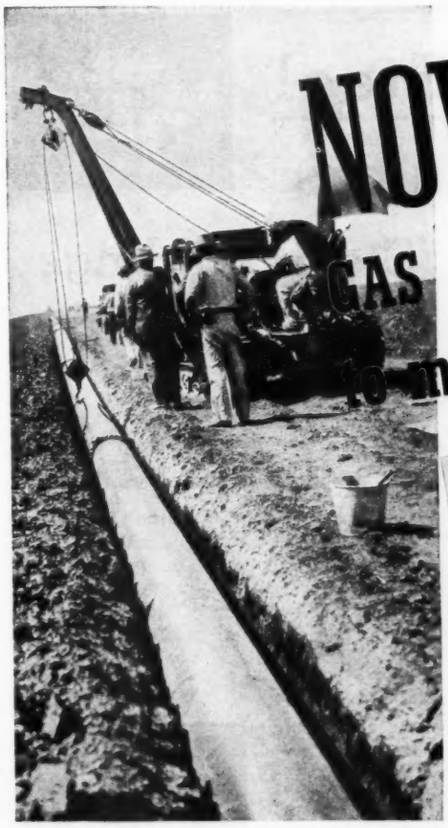
The Illinois Pipe Line Co. placed in operation during the year a 10-mile pipe line from the Medicine Bow field in Carbon County to the Union Pacific Railroad at the town of Medicine Bow. The line consists of double 4-inch and single 6-inch pipe and starts in section 26-21n-79w, runs east about 1 mile and then northeast to section 8-22n-78w. Loading racks and a 10,000-bbl. tank were constructed at Medicine Bow. The Ohio Oil Co. is constructing a treating plant in the NW corner of section 25-21n-79 to reduce the propane gas content of the Medicine Bow crude and facilitate the shipping of same.

The Standard Oil Co. of California built a 20-mile 4½-inch electrically welded oil line from the Quealy dome, in Albany County, to Rock River, on the Union Pacific Railroad. Williams Brothers, Inc., of Tulsa, had the contract. The cost was approximately $85,000. The line furnishes the only outlet for the Quealy field which is operated by the Murphy Oil Co., a Standard subsidiary.

Montana

Pipe line construction in Montana was limited mostly to extensions and replacements necessary to meet changing conditions in the northern fields. The International Refining Co. took up its 20-mile 4-inch line from the Cut Bank field to Shelby and replaced it with a 6-inch line. It also replaced 35,000 feet of 4-inch line from the field to the loading racks at Cut Bank with a 6-inch line. The recovered pipe was used to extend the gathering system to new connections in the southern part of the field. Cobb & Pardee and Nadeau Brothers laid a 2-mile 3-inch line from their wells to Cut Bank and erected a 55,000-bbl. tank at the loading racks.

While no definite plans have been announced regarding construction in 1937, there are several projects which undoubtedly will receive consideration. These include the probable construction of a 125- to 150-mile line from the Carbon County fields in Wyoming, particularly Medicine Bow, to a connection with the Stanolind trunk line opening a market to refineries in the Chicago district, and the building of an outlet from the new Pow-



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der Wash field in northwestern Colorado. The last named logically will run to the Union Pacific Railroad on the north, a distance of 50 to 60 miles. The Carbon County line most likely will run northeast to Fort Laramie where it will connect with the Stanolind line.

Michigan

Upward of $12,000,000 was spent to pipe crude oil and natural gas to Michigan refineries, municipalities and other outlets during 1936.

Though the bulk of this investment was made during the first six months of the past year, opening of half a dozen prospective new oil pools in central Michigan during the closing four months of 1936 pointed to renewed activity this year for pipe line crews and engineers.

Michigan's largest oil line was completed early in 1936, a 140-mile, welded 8-inch trunk extending from central Michigan oil fields to Toledo. The main line was laid by the Michigan-Toledo Pipe Line Co. at a cost of about $1,000,000.

In addition, a 40-mile branch was laid to Trenton, Mich., site of the White Star division plant of Socony-Vacuum Oil Co., and a 12-mile extension was constructed from Mount Pleasant, Mich., to the Pure Transportation company's tank farm in Greendale Township, Midland County at a cost of about $150,000.

The Michigan-Toledo Co. was formed on a 50-50 per cent ownership by the Simrall Pipe Line Co., of Mount Pleasant and the Standard Oil Co. of Ohio. Simrall's 28-mile line from the Crystal Township, Montcalm County field to Mount Pleasant, forms another unit of the system, though it was laid prior to construction of the main trunk.

The Greendale extension was laid to enable the Pure to pipe crude direct to refineries in the Toledo district during the winter months when tanker movement from a storage farm at Bay City via Saginaw Bay, Lake Huron, Lake St. Clair, and the Detroit River channel to the Lake Erie port previously had been suspended.

Oklahoma

Southwestern Gas Utilities Co. laid 12 miles of 6- and 13-inch welded pipe to handle gas from Holdenville through Yeager and Wetumka, Okla.

Oklahoma Pipe Line Co. simplified its system by laying two 15-mile 8-inch loops, one between Little River Junction and Cromwell station and another from Hewitt to the base of the Arbuckle Mountains, all in Oklahoma. This will permit oil from Hewitt station to be pumped direct to Glenpool station and east. Pipe reclaimed from old lines was used on this work.

Cosden Pipe Line Co., Tulsa, laid 22 miles of 4-inch welded pipe line from Fitts pool to the trunk line at Wewoka, Okla., to secure crude oil from the Fitts pool for the Mid-Continent refinery in Tulsa.

Magnolia Pipe Line Co. laid an 8-inch line from Konawa field to the Fitts field, Oklahoma.

Stanolind Pipe Line Co. laid 31 miles of 8-inch welded line looping its line from the Fitts field to near Pauls Valley, Okla.

Oklahoma Pipe Line Co. laid 12 miles of 6-inch from Keokuk to Cromwell, Okla.

The Gulf Refining Co. increased the capacity of its pipe line from Oklahoma to Ohio 20 per cent when it looped a third of the line last year.

Kansas

Texas Empire Pipe Line Co. laid 48 miles of 10-inch oil line between Valley Center, Sedgwick County, Kansas and Pittsburg, Kans. and 287 miles of 10-inch loops in Oklahoma, Missouri, Illinois and Indiana. Also installed 12 new 340-horsepower diesel engines and 6x18-inch horizontal triplex double acting plunger pumps, one in each of the main line stations. Additions were made to the station buildings to accommodate the new pumping units. Capacity of this system after completion of the loops is estimated at 42,000 bbls. daily. Work was started in the middle of October and completed late in December.

Dickey Oil and Refining Corp. built 9 miles of 4-inch pipe line to Graber pool, McPherson County, Kansas from the main line system.

White Eagle line (Socony-Vacuum) was increased from 12,000 bbls. to 20,000 bbls. by 20 miles of 8-inch loops between Burrton and Valley Center, Kans.

Stanolind Pipe Line Co. laid 6 miles of 4-inch from the Gates pool of Stafford County, Kansas, to the Hiss pool of Great Bend.

Continental Oil Co. completed an 8-inch line from Geneseo to Valley Center, Kans., with connection to Mound Ridge pool by 4-inch lateral.

Kaw Pipe Line Co. completed a 22.5-mile 8-inch welded line from the Chase field, Rice County, to Russell County pools, and a 6-inch welded extension.

Work started July 12 on 178 miles of 6-inch welded gasoline pipe line between Augusta and Kansas City, Kans., for the White Eagle division of Socony-Vacuum Oil Co. Augusta refinery. This line will provide an outlet for gasoline and other products to barges on the Missouri River, also will deliver finished products to bulk station in Topeka, Kans. The barge line will serve the upper Missouri River valley above Kansas City.

Stanolind Pipe Line Co. laid 26 miles of 6-inch welded line northwest and west from Fairport station, Russell County, Kansas, to serve new pools in Ellis and Rooks County, Kansas. Also a 4-inch line from the 6-inch system to the Bemis pool, north Ellis County. Further west the same company extended this system by laying about 2 miles of 4-inch and 2.3 miles of 6-inch line to connect with Zurich field in southern Rooks County. Two branches were also laid west of the Zurich station on the 6-inch system and 3 miles of 4-inch to serve outpost wells in this area.

California

Pipe line activity in California showed a substantial revival during 1936 as two major installations, Shell Oil company's Bakersfield-Martinez pipe line and Valley Pipe Line company's Kettleman-Estero pipe line, and a number of minor lines were completed at a cost exceeding $6,500,000. Valley Pipe Line company's main trunk was finished early in the summer and Shell's new pipe line was put in operation early in December. The latter's Bakersfield to Martinez pipe line, including lateral feeders to the Mount Poso, Round Mountain, Edison and Ten Section fields, constitutes the largest undertaking of its kind in Cali-

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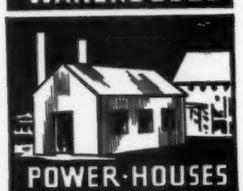

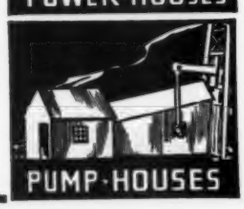

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fornia in over 20 years, as it is 304 miles long and has a nominal rated capacity of 25,000 bbls. per day. Various sizes of pipe, ranging from 6 to 12 inches in diameter, were utilized and the company adopted the most modern equipment available. At Bakersfield, Shell erected eight steel tanks having a capacity of 68,000 bbls. each and constructed a modern two-story office building and equipment yard. All pump stations between Coalinga and Martinez were completely remodeled and a new station erected at Bakersfield. In addition, three new stations were constructed between Bakersfield and Coalinga. Shell's two pipe lines north of Coalinga are able to move approximately 40,000 bbls. of crude oil per day from Coalinga to Martinez.

Valley Pipe Line Co., the stock of which is held jointly by Seaboard Oil Co. and The Texas Co., completed its Kettleman-Estero line in record time. This installation extends from the Kettleman North Dome Association's tank farm in the Kettleman North Dome field to tidewater at Estero Bay in San Luis Obispo County, a distance of 70 miles. It has a normal capacity of 15,000 bbls. per day, but the diameter of the pipe, 10-inch, and the use of heavy wall pipe permits a substantial increase in capacity when necessity demands.

Early in the year, Standard Oil Co. laid 20 miles of 6-inch line from the Mountain View field to Bakersfield and, late in December, laid 3 miles of 6-inch line from the Greeley field of Kern County to its main trunk. In the El Segundo field, Standard Oil Co. laid one-half mile of 4-inch pipe connecting this field with the El Segundo refinery. General Petroleum Corp. only found it necessary to lay 3 miles of 6-inch line to connect up the Wilmington field with existing pipe line facilities.

Natural Gas Lines

Few long-distance natural gas lines were laid in the United States in 1936. A line from Zionsville, Ind., to Detroit, Mich., a 107-mile line in western Kansas; a 120-mile line in the Texas Gulf Coast comprised the biggest construction jobs of the year.

In the face of Michigan's all-time record year for development of its own natural gas reserves, nearly 4,000,000,000 feet of open flow, or seven times the total during 1935, the Panhandle Eastern Pipe Line Co., subsidiary of the Columbia Gas & Electric Co., invested about $8,000,000 to extend a 22-inch line with a capacity of 125,000,000 feet daily at 125 pounds from Zionsville, Ind., to Detroit through three states, Indiana, Ohio and Michigan. In so doing more than half the potential consumption of the state was tapped for Mid-Continent producers, principally in the Texas Panhandle and Kansas.

A 12-mile, 6-inch electric-welded line connecting all central Michigan fields except Ogemaw, Beaverton, Buckeye and Arenac counties to the Michigan-Toledo system.

Toward the close of the year the Simrall Corp. started laying a 12-mile extension of its gathering system in Ogemaw fields to connect the new Clayton Township, Arenac County field with West Branch.

As the year closed, the Michigan Public Utilities Commission granted permission to the Gas Corp. of Michigan to lay a 15-mile line from Winfield Township, Montcalm County, south to Greenville at a cost not yet announced.

A group of Arenac producers recognizing Berea gassers ranging from 300,000 to 24,000,000 cubic feet in daily open flow capacity encountered in their drilling operations to the Dundee for oil, also had formed a committee to handle negotiations expected to lead to new gas line developments in that part of Michigan. W. A. Thomas, of the McClanahan Oil Co., was named chairman.

West Michigan Consumers Co., of Muskegon, operators of a compressor station and distributing system serving 25 major industries, laid about 25 miles of 6-, 4- and 3-inch mains and gathering lines to serve the new Ravenna Township, Muskegon County, Berea gas field developed toward the close of 1936 and to handle by-product gas from the Old Dutch Refining company's new T.V.P. vapor phase cracking unit, also completed toward the close of the year. About $75,000 was invested.

Several other shorter lines were laid including: Four miles by the Gas Corp. of Michigan to connect new gassers in Gilmore Township, Isabella County with a line from Vernon Township, same county, serving Mount Pleasant, Clare and other small communities; 5 miles of 4-inch Dresser coupled line laid by the O. H. Grimes Co. to transport casinghead gas from the Greendale field in Midland County to the Grimes Co.'s new natural gasoline plant in Jasper Township, Midland County; several miles to connect the Grimes plant with a line transporting dry gas from the Apex Natural Gasoline company's plant in the Porter Township field, Midland County to the Dow Chemical Co. plant at Midland and 2 miles from new wells in Vernon Township, Isabella County to a railroad loading rack by the George Hanners Co.

Kansas

Northern Natural Gas Co. constructed a 107-mile 26-inch gas line from the Hugoton field in southwestern Kansas to Mullinville, Kans.

Panhandle Eastern Pipe Line Co. laid 15 miles of 4-, 6-, 8-, 12- and 16-inch gas gathering lines near Dumas, Tex., and Hugoton and Liberal, Kans.

Kaw Pipe Line Co. constructed 10 miles of 6-inch line near Chase, Kans.

Tri-County Pipe Line Co. contracted for 60 miles of 2-, 3-, 4- and 6-inch gas line from the Hamlin well, Finney County, Kansas to supply gas to Scott City and Lakin, Kans.

California

Pacific Gas & Electric Co. laid 10 miles of 8-inch line connecting the Tracy gas field in San Joaquin County, California with its main trunk. Probable additions to the existing system of natural gas lines include new lines by Pacific Gas & Electric Co. from the Rio Vista and McDonald Island gas fields, located adjacent to the San Francisco Bay region. This company may also lay a new gas line out of the Delano and Semi-Tropic gas fields. Southern California Gas Co.

1164 Miles of Pipe Lines
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covering contracts in fifteen states from the Atlantic to the Pacific and from the Great Lakes to the Gulf and including the following Major Oil and Gas Pipe Line Projects:

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Continental Oil Co.	88 Miles	Louisiana
Phillips Petroleum Co.	36 Miles	Texas and Oklahoma
Michigan Gas Transmission Corp.	172 Miles	Detroit Line
Texas Empire Pipe Line Co.	40 Miles	Illinois
Shell Oil Co.	317 Miles	California
Hope Natural Gas Co.	94 Miles	West Virginia
Illinois Pipe Line Co.	40 Miles	Wyoming
Godfrey L. Cabot Co.	119 Miles	New York and Pennsylvania
Gulf Pipe Line Co.	118 Miles	Missouri and Indiana

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Electric Welding Contractors
BARTLESVILLE, OKLA.

LOS ANGELES SAN FRANCISCO

is expected to lay a new gas transmission line out of the Buena Vista Lake gas field. The Ten Section field of Kern County has already been afforded an outlet for natural gas and plans are under way to lay a new pipe line into the Greeley field.

Oklahoma

Consolidated Gas Co. laid 10 miles of 10-inch gas pipe line from Cement field, Caddo County, to the principal gathering system in Chickasha gas field, Grady County, Oklahoma.

LeFlore County Gas Co., Poteau, Okla., laid 25 miles of 8-inch welded line from Red Oak, Okla., to Poteau.

To supply gas to the Fittstown gasoline plant of Crosbie and Moran, Inc., Tulsa, 4 miles of 6- and 8-inch laterals and 4½ miles of 16-inch main line was laid in Fitts pool, Oklahoma.

Louisiana

The Arkansas-Louisiana Gas Co. laid 7 miles of 6-inch screw line from its gathering system in the Old Smackover pool to Phillips Petroleum company's deep gas and distillate discovery in section 27-15-15, Ouachita County, Arkansas.

Arkansas-Louisiana Gas Co. laid 18 miles of 10-inch line from its Monroe-Shreveport natural gas line to the recently discovered gas and distillate area in the southwest corner of Lincoln Parish, Louisiana, centering at Simsboro.

A vast number of gas gathering lines were installed throughout the Rodessa field in 1936. Probably the most extensive were those laid by United Gas Public Service Co. to serve its two-stage compressor station and its 140,000,000-foot capacity gasoline plant. The company's system was composed of about 40 miles of line, 24-inch main gathering line extending into both sides of the field, and fed through 16-inch and 18-inch feeder lines.

Texas Pipe Line Co. completed laying 24½ miles of 8-inch welded gas line from the Lafitte field in Jefferson Parish to Lake Washington in Plaquemines Parish. The line was laid by the Apex Construction Co.

Texas

Two of the largest pipe line construction projects along the Gulf Coast district the past year consisted of a 122-mile 10-inch welded gas line from the Tomball field to industrial centers along the Gulf Coast, now under construction by the Humble Oil and Refining Co.

Two gas lines were laid in the Rio Grande Valley area. One line connects McAllen with the industrial gas line of the Hidalgo Gas Co., and the other supplies the Rio Grande Valley Gas Co. system with production from the Mercedes and Mestanas fields of Hidalgo County.

The longest line laid in the north-central Texas district was put down by the White Deer Construction Co. from the Johnson pool in western Foard County to the West Texas Utilities plant near Quanah in Hardeman County, 30 miles northwest. This was a 6-inch line to carry gas from The Texas Company's casinghead gasoline plant in the Foard County field to the electric generating plant for fuel.

The Arkansas-Louisiana Gas Co. laid 18 miles of gas line from Mount Pleasant, Tex., to the Talco field and town of Talco to supply that field and town with natural gas.

Murchison and associates laid a 4-inch line from the Cayuga field in northwest Anderson County, 16 miles, to the city of Athens to supply commercial houses and industries with gas.

Rocky Mountain Fields

There was comparatively little gas pipe line construction in the Rocky Mountain area in 1936. The most pretentious project was the building of a 22-mile 3-inch arc welded line from the Thornburg dome to the town of Craig, both in Moffat County, Colorado, by the Rocky Mountain Gas Co., an affiliate of the Ohio Oil Co. Gas for the new line is being taken from the Continental Oil Company's No. 1 Wymore, on the Thornburg dome, under a contract between the two companies. Although construction was a difficult job on account of the rugged nature of the terrain, the line was completed in the record time of 20 days. Pipe was moved in 40-foot sections and some of it had to be moved to location by man labor due to inability of tractors and teams to get into the territory.

The Mountain States Power Co. built a connection between its line from the Golden Eagle dome, in Hot Springs County, Wyoming, to Thermopolis, and the Big Horn Gas company's Buffalo Basin-Grass Creek trunk line. New construction consisted of 12 miles of 4½-inch pipe.

The Mountain Fuel Supply Co. has plans under consideration for 1937 for constructing a 24-mile line connecting up its South Baxter Basin system with the Clay Basin field in the northeastern corner of Utah. The Clay Basin field was extended for gas in the Dakota in 1936.

Canada

In Ontario arrangements for marketing production of the new Brownsville field in Oxford County, Ontario, Canada, involved the laying by the Oxford Pipe Line Co. of 13½ miles of 6-inch transmission line from the field to the Southern Ontario Gas Co. main transmission line at Ingersoll, and construction by the Koppers Co. of a $125,000 purification plant in the field.

The Southern Ontario Gas Co. during the season reconditioned its line from the Glenwood field to Hamilton, completely relaying about 10 miles of the section between Glenwood and Talbotville.

In the Eden field, Elgin County, Ontario, Central Pipe Line Co. laid 5½ miles of 4-inch line to deliver gas from new wells to its main line serving Aylmer. The same company laid 4 miles of 4-inch line together with a complete local distributing system to serve the village of Springfield.

The Union Gas Co. of Chatham, Ontario, which in 1935 completed a 55-mile line from the Dawn field in London, duplicated about 30 miles of this line with 8-inch and 10-inch pipe between a point north of Glencoe and London. Several miles of 8-inch line, also duplication, were laid in the Dawn field; and it is expected that ultimately the entire line will be duplicated. A franchise has been secured for Glencoe. The Union company also re-

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STATEMENT OF CONDITION
December 31, 1936

RESOURCES	
Cash and Due From Banks	$18,253,963.31
U. S. Government Securities	12,829,679.47
Municipal Securities	1,965,033.86
Industrial Securities	854,314.98
Loans and Discounts	**15,999,249.55**
Overdrafts	196.39
Other Real Estate	202,292.50
Federal Reserve Bank Stock	90,750.00
Income Receivable Accrued	159,969.88
Bank Premises and Fixtures	1,317,181.80
Total Resources	$51,672,631.74
LIABILITIES	
Deposits	$47,705,677.14
Income Collected Not Earned	86,357.58
Capital	2,500,000.00
Surplus	525,000.00
Undivided Profits and Reserves	855,597.02
Total Liabilities	$51,672,631.74

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placed about 7 miles of line south and east of Sarnia, relaid portions of the Sarnia line affected by paving operations, and laid 9,000 feet of 6-inch line connecting the main line with Wallaceburg

Refined Prices Advance

(Continued from Page 69)

tory market, and in the fall months, when refiners were buying naturals for blending into winter motor fuels, it enabled the 26-70 grade to reach a peak of 4¾ cents.

Two fields which developed into important natural gasoline producing areas during the past year were East Texas and Rodessa. The former at the beginning of 1936 was producing about 257,000 gallons daily. Production steadily mounted until in October the daily average was approximately 400,000 gallons. Although the daily output of the Rodessa field is less than that of East Texas, it has increased even more in relative importance as a natural gasoline manufacturing area.

Kerosene and heavy fuel oils also sold at increased prices during 1936 at inland refineries, but at all coastal points quotations on these products for the year averaged somewhat lower than in 1935. Wax, both crude and refined, also sold for higher prices and was in good demand.

A more detailed summary of the averages prices of the various refined products may be found in the accompanying two tables.

Gas and Fuel Oil Exports

(Continued from Page 65)

exclusively from Venezuela and Mexico, remains substantially below the 1934 rate when 32,359,000 bbls. were imported during the first 11 months.

Imports of refined products totaling 22,385,000 bbls. for the first 11 months are approximately 19 per cent higher than in 1935. The improvement and expansion of foreign refining facilities, made compulsory or advisable by nationalistic tendencies abroad, along with increased crude production in most petroleum countries were responsible factors for this item.

The material increase in foreign purchases of gas oil and fuel oil probably reflected the steps taken by nearly all foreign countries to prepare against possible military invasion. Naval stores of a majority of European countries have received careful consideration from their respective governments in the past few months and in addition there has been a greater demand for fuel from industry in general.

Kerosene exports at 6,201,000 bbls. for 11 months were up only a fraction of 1 per cent from the total of 6,137,000 bbls. at the same time in 1935, but even a small gain was contrary to some expectations. Equipment of foreign refineries to produce specification kerosene from available crude supplies has gradually restricted the market abroad for American kerosene producers.

The lubricating oil export business maintained by refiners in the United States also ran counter to general expectation. However, the 1 per cent increase in shipments from this country was by no means equivalent to the increased foreign consumption during 1936 and probably will be reversed in trend in 1937, unless gains in demand similar to 1936 are experienced. Also, the fact that several foreign refineries are now being equipped to produce quality lubricating oils, probably will prevent any material gains in lube oil exports over the next 11 months.

Total imports of crude oil for last year increased about 6 per cent to 32,559,000 bbls., against 30,940,000 bbls. for 1935 and were slightly above the 32,310,000 bbls. reported in 1934. Figures on imports in Table 2, taken from the American Petroleum Institute weekly summaries, show foreign crude shipped to this country ranging from 1,809,000 bbls. in January to a peak of 3,128,000 bbls. in October. Fuel oil imports totaling 21,561,000 bbls. came chiefly from the Dutch West Indies and from Mexico, but the total imports of 55,498,000 bbls. fell far short of the United States petroleum exports.

Further restriction was disclosed in movement of California refinery products to the Atlantic Coast and for all of 1936 totaled only 7,731,000 bbls., a daily average of 21,180 bbls. Philadelphia, as shown in Table 3, was the largest port of discharge with those classified as "others" and New York trailing. Out of the 7,371,000 bbls. total of California products moved to the Atlantic Coast, more than 70 per cent was gasoline. Compared to 1935, however, last year's shipments of California products to the Atlantic Coast slumped more than 20 per cent. The ratio existing between the totals for the past two years carried through most of the products, although fuel oil movement was down approximately 50 per cent to 621,000 bbls.

Alberta Regulations Changed

EDMONTON, Alberta.—A new regulation issued by the lands and mines department of the Alberta provincial government provides for the granting to holders of oil and gas permits of credits for amounts expended in exploration work. The regulation authorizes the minister of lands and mines, upon satisfactory evidence being presented, to make allowance on rentals for expenditure in actual core drilling or other operations, exclusive of the cost of machinery and casing but including reasonable depreciation.

Texas University Leases

AUSTIN, Tex.—Public auction of oil leases on 14,247 acres of University of Texas land has been announced to be held at the state land office February 26.

Nine tracts will be offered in Upton County, 1,312 acres; 162 acres in Upton and Reagan counties; four tracts in Ector County, 651 acres; four tracts of 160 acres each in Crane County; more than 9,000 acres in Andrews County and 1,760 acres in Pecos County. The Pecos area is divided into nine tracts and that in Andrews into 56 tracts of approximately 160 acres each.

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Annual Review

THREE POOLS OPENED IN CALIFORNIA THAT ADD MUCH TO RESERVES

By L. P. STOCKMAN

The past year was characterized by a general improvement in all branches of the California oil industry and there is ample evidence to justify the expectation that the improvement will continue during 1937. Earnings of producers, refiners and marketers were the highest since 1930 and all indications point to the maintenance or bettering of this condition in 1937. Important new discoveries, which should prove valuable additions to crude oil reserves, were made in various areas, and for the first time in several years the immediate future can be viewed with optimism. Considerable progress has been made in the technical branches of the industry in recent years and necessary expansion of refining facilities may be anticipated during 1937. Associated Oil Co., Union Oil Co. and Wilshire Oil Co. have already announced expansion plans for 1937 and a general reconditioning program will probably be started in the near future by Richfield Oil Corp. In January, 1936, buyers were confronted with an alarming situation due to overproduction of crude oil, but this was promptly rectified after a survey of the situation and the reduction in crude oil production subsequently effected was ultimately reflected in an improvement in the refined oil market.

FIELD OPERATIONS BY MONTHS FOR YEAR 1936

1936—	Wells completed— No.	Wells completed— Bbls. dly.	Wells— Drlg.	Wells— Producing	Abandoned— Drlrs.	Abandoned— Producers	New rigs
January	71	34,687	204	12,766	31	8	87
February	43	13,561	208	12,691	34	35	73
March	63	32,726	232	12,214	27	2	84
April	55	27,338	215	12,041	24	39	90
May	64	39,721	250	11,913	36	20	87
June	86	35,508	231	11,923	19	9	120
July	78	33,958	245	12,012	18	24	92
August	69	37,083	252	12,122	30	10	107
September	72	27,610	245	12,018	29	8	77
October	69	28,693	255	12,133	19	10	109
November	71	24,950	248	12,227	28	20	93
December	61	38,167	227	12,230	25	23	75
Total 1936	802	374,002			320	208	1,094
Total 1935	763	660,980			347	203	1,035
Total 1934	452	570,637			247	200	641
Total 1933	248	274,104			163	215	354
Total 1932	184	156,823			191	172	219

The crude oil market in California was firm during 1936 and toward the latter part of the year substantial premiums were being paid for the highest grade of crude. The natural gasoline market tightened up in the summer of 1936 and as a consequence a number of refiners were obliged to offer premiums for all grades. Richfield Oil Corp. found it necessary to bring in 77,625 bbls. of natural gasoline from the Gulf Coast in order to meet California requirements. In addition to this natural gasoline, two cargoes aggregating approximately 100,000 bbls. of motor fuel were brought into Pacific Coast territory from the Gulf Coast by independent marketers and distributed in California, Washington, Oregon and Montana. Intercoastal shipments of gasoline, kerosene, asphalt, lubricants, diesel and gas oil from California to the Atlantic seaboard in 1936 were lower than during the preceding year, but total export shipments to foreign ports were slightly higher. Foreign shipments of crude oil and fuel oil in 1936 were lower than during 1935, but the liftings of diesel and gas oil, gasoline, kerosene and lubricants destined for foreign ports in 1936 were in excess of similar movements during the previous year.

Production Higher

Crude oil production during 1936 reached the highest level recorded since 1930, when the state's output aggregated 228,099,899 bbls. The high point in 1936 was reached in January, when 21,083,006 bbls. were produced, but as a result of curtailment work, production was maintained below 590,000 bbls. daily for the remainder of the year. The decline in crude oil production during the latter part of 1936 is the result of effective curtailment and a consistent decline in the production of existing fields. The Kettleman North dome field topped all other producing areas in the state during the year and will probably maintain its present position for several years, as other ranking fields in 1936 are definitely headed for lower levels. Long Beach, Midway-Sunset, Santa Fe Springs, Huntington Beach, Mountain View and Dom-

CALIFORNIA CRUDE OIL PRODUCTION, JANUARY-DECEMBER, 1936, INCLUSIVE
(Barrels of 42 U. S. Gallons)

Northern Fields—	January	February	March	April	May	June	July	August	September	October	November	December	Tl. 19
Beiridge—North	296,917	244,570	249,538	250,217	267,877	265,769	306,929	338,951	382,150	469,344	406,000	438,701	3,9
Beiridge—South	71,436	61,298	66,300	63,743	66,294	61,916	58,322	54,560	56,233	57,760	56,067	57,369	7
Coalinga	661,112	528,066	572,036	502,758	503,716	492,337	480,965	468,952	439,258	467,192	471,969	478,718	6,0
Edison	172,380	149,445	143,805	146,915	166,608	178,168	176,490	192,179	177,879	183,422	170,487	165,673	2,0
Elk Hills	300,952	256,748	265,433	291,840	294,884	254,196	260,586	257,958	249,688	253,412	248,111	260,637	3,1
Fruitvale	231,565	198,773	202,209	216,274	231,055	227,272	245,716	257,565	267,420	288,280	268,223	268,268	2,9
Greeley	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,958	
Kern River	510,156	417,745	418,370	417,655	424,875	401,236	425,336	417,005	412,997	426,133	435,754	429,588	5,1
Kettleman Middle dome	12,883	12,463	15,429	14,542	14,136	12,192	11,631	10,677	9,349	9,012	8,039	7,316	1
Kettleman North dome	3,000,165	2,316,362	2,383,517	2,339,886	2,421,181	2,332,938	2,408,325	2,467,047	2,328,912	2,414,987	2,328,201	2,416,770	28,1
Lost Hills	144,691	118,335	112,100	101,092	105,562	101,796	102,564	101,947	118,928	116,491	108,385	114,866	1,3
McKittrick	130,024	105,158	56,293	50,310	51,990	53,881	58,213	53,911	55,400	55,097	52,926	54,217	7
Midway-Sunset	1,924,961	1,554,364	1,643,383	1,671,760	1,803,950	1,815,936	1,769,887	1,756,663	1,776,564	1,844,575	1,859,384	2,060,194	21,4
Mountain View	1,116,571	919,215	854,400	796,704	868,116	838,357	812,709	810,884	696,837	695,287	659,958	643,620	9,7
Mount Poso	698,649	546,303	565,039	586,551	588,540	517,603	518,472	544,789	535,223	550,265	540,669	555,107	6,7
Round Mountain	316,495	262,774	284,040	291,476	327,576	318,538	372,500	362,932	349,944	366,946	346,527	355,631	3,9
Ten Section	.....	.....	.....	.....	.....	23,241	24,881	24,189	22,760	25,891	35,446	32,056	1
Wheeler Ridge	12,683	10,388	11,353	10,686	10,809	10,500	10,515	10,557	10,266	10,637	10,279	10,289	1
Coastal Fields—													
Capitan	57,328	40,324	43,489	42,353	44,153	42,854	45,677	46,101	49,215	47,707	53,886	57,640	6
Elwood	499,377	368,312	367,207	374,848	399,475	366,856	381,431	356,218	326,824	363,356	349,978	324,850	4,4
Rincon	64,182	53,933	52,355	60,457	67,154	62,135	61,509	65,264	64,472	70,366	63,683	68,708	7
San Miguelito	51,149	29,903	42,227	42,439	45,095	41,737	42,798	42,148	45,691	64,073	66,416	66,494	5
Santa Barbara	67,257	48,762	54,125	50,667	49,558	46,400	39,211	36,752	30,013	30,331	27,169	23,694	5
Santa Maria	124,830	103,394	119,972	121,888	125,122	133,917	145,089	153,666	159,133	156,261	159,741	165,721	1,6
Summerland	1,114	873	1,319	1,119	1,117	1,097	1,064	930	1,076	1,055	1,073	1,068	
Ventura Avenue	1,256,131	985,453	1,038,308	1,015,818	1,049,689	1,009,072	1,050,988	1,051,822	1,010,509	1,045,568	1,029,277	1,067,243	12,6
Ventura-Newhall	132,782	117,781	131,829	133,002	140,502	141,471	148,523	153,762	147,767	146,929	149,645	155,912	1,6
Watsonville	1,860	1,740	1,860	1,800	1,860	1,800	1,860	1,860	1,800	1,860	1,800	1,866	
Southern Fields—													
Brea Olinda	309,504	217,642	232,873	239,841	248,189	239,106	248,019	246,446	235,120	252,494	241,503	250,016	2,9
Coyote—East	85,904	67,194	71,345	65,937	70,925	68,569	71,761	78,412	76,411	79,771	85,554	87,863	
Coyote—West	323,195	239,682	251,702	244,157	252,885	248,340	253,849	247,356	240,625	247,685	235,418	249,079	3,0
Domingues	948,920	895,774	832,163	794,473	801,961	779,478	793,233	809,333	754,473	771,082	759,526	771,763	9,7
El Segundo	.....	.....	.....	4,456	10,058	11,817	11,742	10,252	12,573	11,815	11,317	65,119	1
Huntington Beach	1,278,419	1,076,760	1,107,900	1,071,482	1,099,416	1,085,198	1,104,214	1,099,192	1,083,671	1,092,942	1,053,052	1,095,253	13,3
Inglewood	478,431	354,206	368,541	349,120	367,871	363,055	362,392	371,842	380,716	369,183	374,286	407,064	4,5
Lawndale	8,384	7,285	8,372	1,821	2,850	2,907	2,998	2,848	3,380	2,482	3,143	2,837	
Long Beach	2,412,968	2,068,317	2,167,124	2,072,914	2,096,479	2,040,760	2,076,129	2,066,754	2,027,490	2,031,418	1,962,480	1,971,466	24,5
Los Angeles-Salt Lake	23,147	23,057	26,474	24,407	25,715	25,158	27,373	28,093	26,003	25,111	24,508	26,498	3
Montebello	247,270	201,583	245,459	226,882	250,714	295,115	317,283	295,128	274,533	302,951	273,287	274,509	3,1
Playa Del Rey	501,080	396,874	398,129	407,655	424,178	408,392	376,586	367,535	355,160	356,650	329,579	321,840	4,6
Potrero	10,293	9,954	9,215	10,162	9,862	10,164	9,904	8,206	8,645	8,244	8,708	9,199	1
Richfield	255,375	186,914	195,483	194,252	191,754	184,813	193,018	195,175	193,459	216,503	212,877	222,885	2,4
Rosecrans	84,843	60,129	69,047	61,642	62,160	61,162	61,856	65,581	70,000	72,197	66,938	68,256	
Santa Fe Springs	1,665,950	1,282,781	1,332,476	1,293,138	1,358,216	1,321,969	1,373,811	1,400,773	1,328,757	1,370,744	1,355,574	1,375,952	16,0
Seal Beach	346,809	274,588	290,903	292,418	291,757	276,474	294,240	290,100	287,377	286,460	262,774	267,167	3,4
Torrance	212,774	192,295	207,549	199,168	210,875	239,755	240,057	273,446	263,705	254,720	264,801	300,747	2,9
Whittier	32,089	27,913	30,323	29,395	29,179	29,814	28,852	28,919	26,716	27,341	27,897	28,195	3
Total	21,083,006	17,035,430	17,541,014	17,180,120	17,875,938	17,445,261	17,809,508	17,924,680	17,375,122	17,942,030	17,462,315	18,081,903	214,7
Daily average 1936	680,097	587,428	565,839	572,671	576,643	581,509	574,500	578,215	579,170	578,775	582,077	586,766	
Daily average 1935	500,365	498,538	497,781	472,471	494,910	556,962	561,868	600,136	640,336	650,065	676,476	678,284	
Daily average 1934	456,886	449,778	474,581	482,426	486,152	515,556	517,878	493,279	468,427	466,251	477,846	478,800	
Daily average 1933	466,461	468,109	432,741	475,431	477,988	478,155	488,414	501,188	489,129	473,065	464,452	475,022	
Daily average 1932	501,037	504,030	502,449	517,481	502,443	470,632	471,856	478,708	478,371	471,860	471,413	470,897	

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Tulsa, Oklahoma

WHEATLEY
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VALVES

inguez followed the Kettleman North dome field in the order named. Kettleman North dome maintained a steady production during the entire year of 1936, but the Mountain View field, on the other hand, showed a consistently declining production, indicating that it has ceased to be the important factor it was in 1935.

Santa Maria Valley

Santa Maria, reflecting the completion of several large wells in the Santa Maria Valley field, showed an increasing tendency toward the latter part of 1936, but the actual recorded production was only a small part of the field's potential. Due to the absence of pipe line facilities, operators in the Santa Maria Valley field are only able to produce a very small part of the established potential, as the wells are shut in immediately after completion. At the close of December operators had approximately 20,000 bbls. per day shut in. Union Oil Co. is expected to lay a pipe line into the Santa Maria Valley field early in 1937 and for this reason production of the Santa Maria group of fields is expected to reach a higher level during this year. Ventura Avenue, Coyote, Dominguez, Huntington Beach, Inglewood, Long Beach, Richfield, Santa Fe Springs and Seal Beach, after reflecting the curtailment effected in February, 1936, maintained a relatively stable production during the remainder of the year. The Torrance field, due to extension work in the Rodondo or western end of the field, showed an increasing tendency during 1936 but apparently reached peak production during August, when 273,446 bbls. were produced.

The Year's Discoveries

The Ten Section field of Kern County, discovered by Shell Oil Co., made its first appearance in the production column in June, 1936, and the Greeley field, discovered by Standard Oil Co., made its initial appearance in December. Both will reach higher levels in 1937, although Shell and Standard, in order to maintain an equilibrium between supply and demand, will restrict production.

The El Segundo field of Los Angeles Basin, discovered by Republic Petroleum Co. in August, 1935, has only produced a relatively small amount of crude oil up to the present as the first three wells completed only showed small initials. The outlook for the El Segundo field was greatly enhanced in December, however, when Richfield Oil Corp. completed its No. 1 El Segundo flowing 2,500 bbls. of exceptionally clean 27.4 gravity oil per day from 7,435 feet. Completion of this large well greatly stimulated drilling operations and at the close of the year 11 new wells were either already under way or scheduled for immediate work.

The Montebello field, due to completion of several large flowing wells in the eastern extension, showed a slightly increased production during the latter part of the year, but the abnormally high decline and rapid depletion of the productive horizon indicates that production of this field will probably get back to normal during 1937.

Proration

Proration of crude oil production was a stabilizing influence in 1936, and California operators are to be highly commended for their cooperative efforts. As a result of this constructive action, crude and refined oil stocks in Pacific Coast territory have been reduced from a high of 189,698,723 bbls. on hand February 28, 1930, to approximately 130,000,000 bbls. at the close of 1936. This substantial reduction was effected during a period when the potential daily production of crude oil in California was at its highest peak. Elimination of excessive stocks of crude and refined oil has strengthened the entire price structure and the favorable effect of this action will ultimately be reflected in a more tangible form.

A substantial reduction was effected in the stocks of crude oil in California during 1936 but fuel oil and heavy crude registered a consistent increase. Gasoline stocks reached 15,023,146 bbls. at the close of May but subsequently declined with the result that stocks on hand December 31, 1936, were approximately equal to the amount of motor fuel on hand at the beginning of the year. Naphtha distillates, tops, reached a high of 1,963,326 bbls. at the close of June but registered a drop during the last six months of the year.

New Fields

After several years of diligent effort with negative results, California operators stepped out in 1936 and by discovering three new fields have made up for a considerable part of the depletion that has occurred during the past five years. In order to keep pace with the decline in existing fields, operators are obliged to open up an average of approximately 150,000,000 bbls. of new production annually. California has been drawing on its reserves for five years, but with the discovery of prolific production in the Ten Section, Greeley and Padre Canyon fields by Shell Oil Co., Standard Oil Co. and Continental Oil Co. and the finding of substantial production in the El Segundo and Wilmington fields by Richfield Oil Corp. and General Petroleum Corp., prospectors have made up for a lot of the time lost during the period in question. In addition to these new discoveries, Union Oil Co., after a persistent search extending over a period of two years, has located a substantial accumulation of oil and gas in the Santa Maria Valley field of Santa Barbara County.

Shell Oil Co.'s discovery well in the Ten Section field of Kern County was No. 1 Kern County Land in section 29-30-26. This well, bottomed at 7,888 feet, was brought in flowing 744 bbls. of clean 60.9 gravity oil and 10,130,000 feet of natural gas per day. Shell's second well in this field was carried down through the gas cap and was completed flowing 1,040 bbls. of clean 34.3 gravity oil and 1,020,000 feet of natural gas per day from 8,385 feet. Standard Oil Co.'s discovery well in the Greeley field of Kern County was No. 11-1 Kern County Land in section 19-29-26. This wildcat was completed in December, 1936, flowing 2,046 bbls. of clean 36.5 gravity oil and 1,075,000 feet of natural gas daily from 7,807 feet. The Padre Canyon field of Ventura County was discovered February 26, 1936, when Continental Oil Co. completed No. 1 Hobson flowing 478 bbls. of 30.1 gravity oil and 255,000 feet of natural gas per day from 5,501 feet. General Petroleum Corp. proved the Wilmington field of Los Angeles Basin to be an area of prime importance by completing No. 1 Terminal flowing 1,500 bbls. of relatively clean 18.6 gravity oil and 500,000 feet of natural gas per day from 3,625 feet. A number of independent operators completed small pumping wells in this area but it remained for General Petroleum to prove up the district as highly productive.

Outlook Favorable

Less than a year ago pessimists were much concerned about future production in California, but subsequent discoveries and validation of the California Fair Trade Act by the Supreme Court has brightened the outlook to a considerable extent. There is not now nor has there been

(Continued on Page 146)

PRODUCTION OF CRUDE BY MONTHS—CALIFORNIA OIL DISTRICTS

(In Barrels of 42 U. S. Gallons)

Month—	1936 Total barrels	1936 Daily average	1935 Total barrels	1935 Daily average
January	21,083,006	680,097	15,511,311	500,365
February	17,035,430	587,428	13,959,063	498,538
March	17,541,014	565,839	15,431,203	497,781
April	17,180,120	572,671	14,174,149	472,471
May	17,875,938	576,643	15,342,221	494,910
June	17,445,261	581,509	16,708,859	556,962
Total first half	108,160,769	594,290	91,126,806	503,463
July	17,809,508	574,500	17,417,910	561,868
August	17,924,680	578,215	18,604,220	600,136
September	17,375,122	579,170	19,210,077	640,336
October	17,942,030	578,775	20,152,039	650,065
November	17,462,315	582,077	20,294,268	676,476
December	18,081,903	583,287	21,026,811	678,284
Total year	214,756,327	586,766	207,832,131	569,403

TOTAL FLUID STOCKS OF PETROLEUM HELD IN PACIFIC COAST TERRITORY

(Barrels)

	Heavy Crude & Fuel	Refinable Crude	Gasoline	Naphtha Distillates	All Other Stocks	Total All Stocks
1935—						
December 31	68,201,291	38,950,469	12,328,183	1,695,564	9,453,139	130,628,646
1936—						
January 31	70,055,178	40,642,706	13,331,242	1,916,722	9,297,868	135,243,716
February 29	71,004,770	40,283,260	14,552,868	1,748,720	9,232,177	136,821,795
March 31	71,074,147	39,683,463	14,447,379	1,577,324	9,656,271	136,438,584
April 30	71,065,525	39,470,817	14,286,558	1,534,084	9,493,275	135,850,259
May 31	71,571,022	38,734,077	15,023,146	1,689,495	9,500,622	136,518,362
June 30	71,978,146	38,142,786	14,434,355	1,963,326	9,221,622	135,740,235
July 31	72,903,050	36,729,282	13,752,556	1,798,314	8,859,354	134,042,556
August 31	73,643,685	35,435,137	13,562,948	1,743,477	8,806,382	133,191,629
September	73,558,632	34,116,257	13,076,509	1,819,753	8,335,493	130,906,644
October 31	73,339,857	33,874,512	13,435,896	1,880,125	8,455,380	130,985,770
November 30	73,628,773	33,680,672	13,024,277	1,788,556	8,089,027	130,211,305
December 31	.....	.....	.....	.....	.....	.....

CALIFORNIA FIELD OPERATIONS BY DISTRICTS, YEAR 1936

	Oil or gas wells completed		Oil and gas wells*		Abandoned		New rigs
Northern—	No.	Bbls. dly.	Drlg.	Prod'g	Drlrs.	Prod'rs	
Belridge—North	11	29,104	5	34	1	1	9
Belridge—South	...	.....	....	178	....	....	....
Buena Vista Lake gas	2	Gas	....	....	1	....	2
Buttonwillow gas field	...	.....	....	7	....	....	....
Chowchilla gas field	1	Gas	....	....	2	....	2
Coalinga	5	51	5	893	7	48	10
Delano gas field	2	Gas	....	....	....	....	1
Dudley Ridge gas field	...	.....	2	....	1	....	....
Edison	36	5,075	5	78	16	3	36
Elk Hills	...	.....	....	161	....	....	....
Fruitvale	48	10,496	8	103	6	1	63
Greeley	1	2,657	....	....	....	....	....
Kern River	72	12,351	9	1,372	9	1	94
Kettleman middle dome	1	1,350	1	3	2	....	1
Kettleman north dome	52	80,323	22	125	3	2	44
Lost Hills	5	1,346	2	278	8	2	12
McDonald Island gas field	2	Gas	....	....	1	....	3
McKittrick	5	418	3	137	2	2	12
Midway-Sunset	96	30,981	16	2,335	13	15	139
Mountain View	62	34,220	11	151	6	5	54
Mount Poso	37	10,203	7	213	23	3	55
Rio Vista gas field	1	Gas	1	....	1	....	2
Round Mountain	57	22,306	4	98	6	....	65
Semi-Tropic gas field	...	.....	....	....	1	....	....
Ten Section	2	2,480	2	1	2	....	8
Tracy gas field	4	Gas	....	2	1	....	4
Wheeler Ridge	...	.....	....	28	....	1	1
Total	502	243,861	103	6,197	112	84	617
Coastal—							
Capitan	16	4,380	2	24	3	....	18
Elwood	4	4,204	1	70	1	....	2
Goleta gas field	...	.....	....	....	....	....	....
Rincon	1	95	....	30	3	1	1
San Miguelito	5	2,202	2	7	....	....	6
Santa Barbara	2	305	....	59	2	10	2
Santa Maria	13	14,920	7	194	8	2	38
Summerland	...	.....	....	19	....	....	....
Ventura Avenue	17	13,186	6	230	....	....	12
Ventura-Newhall	13	2,843	15	556	15	1	26
Watsonville	...	.....	....	7	....	....	....
Total	71	42,135	33	1,196	32	14	105
Southern—							
Brea Olinda	1	42	1	356	2	5	1
Coyote—East	3	582	1	77	2	....	11
Coyote—West	3	2,185	....	47	....	....	1
Dominguez	22	19,903	5	118	....	....	25
El Segundo	3	2,980	1	2	1	....	10
Huntington Beach	19	2,695	5	510	4	12	25
Inglewood	15	19,456	2	203	2	....	12
Lawndale	...	.....	1	6	2	....	1
Long Beach	25	3,129	4	1,244	26	42	10
Los Angeles-Salt Lake	...	.....	....	124	....	4	....
Montebello	31	16,492	9	190	9	....	31
Newport	...	.....	1	....	....	....	....
Playa Del Rey	10	2,543	4	210	10	10	14
Potrero	...	.....	....	11	....	2	....
Richfield	11	1,713	4	248	1	5	17
Rosecrans	2	135	1	75	....	....	2
Santa Fe Springs	25	4,067	5	613	2	20	20
Seal Beach	4	1,762	1	109	....	1	1
Torrance	55	10,322	8	496	2	8	67
Whittier	...	.....	....	159	2	1	....
Miscellaneous	....	.....	45	....	111	....	124
Total	229	88,006	98	4,798	176	110	372
Total state	302	374,002	234	12,191	320	208	1,094

*Monthly average.

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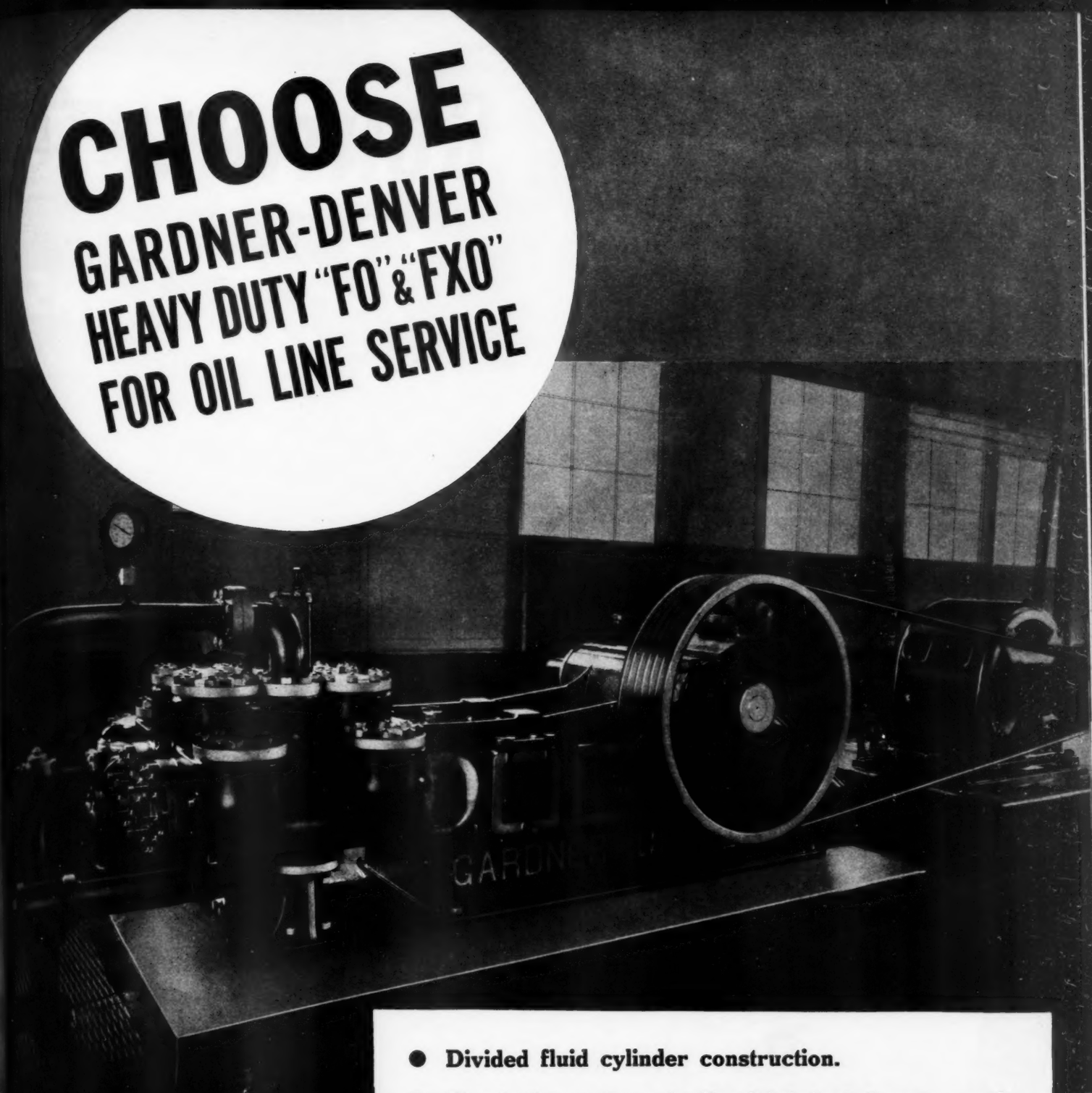

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Annual Review

53 OIL POOLS AND 12 GAS FIELDS ARE OPENED IN KANSAS IN 1936

By
DAL DALRYMPLE

Exploration for oil and gas in Kansas was carried on over an ever-enlarging area in 1936 with an amazing record of success, a total of 65 wildcats being completed as oil or gas producers. As wildcat completions totaled 280 in the 12-month period, the percentage of discoveries was 23.2 or nearly one successful wildcat in every four completed.

In other respects 1936 also was a banner year in the history of Kansas oil. In addition to the many new pools that were opened, several productive areas were extended, deeper pay horizons were discovered in proven sectors and numerous intervening areas were drilled up to connect small pools with larger fields. A total of 1,721 wells were completed. These included 1,214 oil wells, 61 gas wells and 446 dry holes. It is believed that the number of completions in the shallow districts of the southeastern counties that are not scouted would bring the total for the year to around 2,000. This is the largest number of completions in Kansas since 1926, when the total was 2,280. Imposing as the 1936 record of completions is, it still is far short of the 4,671 wells completed in 1918, when Eldorado and other Butler and Greenwood County fields had their heyday.

New Records Set

Daily average production soared to new heights, new all-time peak records being set several times during the year, only to be eclipsed by later totals. For the first time in the history of the state the total potential of Kansas fields passed the 1,000,000-bbl. mark in June and had gone considerably higher by the end of the year.

An intensive drilling campaign was carried on throughout the year in the proven sectors, especially in Rice, Russell, Barton, Reno, Ellis, Ellsworth, Harvey, McPherson, and Sumner counties. There also was a revival of work in older areas in Butler, Greenwood, Woodson, Coffey, Cowley, Chautauqua and Elk counties, while the stripper areas of Wilson, Montgomery, Anderson and other eastern counties experienced new activity.

The Silica pool, straddling the Rice-Barton County line, was outstanding among Kansas fields. Its productive limits were extended in nearly every direction during the year, and its daily average production increased until it disputed the state lead with the Burrton field of Reno County. Its potential was larger than that of any other field. Numerous 1,000- to 3,000-bbl. wells were completed in the Silica field, and in the neighboring Raymond, Peter and Schartz areas in the last 12 months.

The Burrton field continued to rate one-two in the state in the matter of daily average production, yielding

Kansas

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
BARTON COUNTY:													
Beaver—													
Daily average	327	288	293	310	300	291	313	438	357	343	406	339	
Month	10,137	8,352	9,083	9,300	9,300	8,730	9,703	13,578	10,710	10,633	12,180	10,509	122,215
Ellinwood—													
Daily average	688	647	703	760	794	623	653	694	645	602	581	658	
Month	21,328	18,763	21,793	22,800	24,614	18,690	20,243	21,514	19,350	18,662	17,430	20,398	245,586
Isern—													
Daily average	541	466	513	530	466	417	428	608	588	440	514	857	
Month	16,771	13,514	15,903	15,900	14,446	12,510	13,268	18,848	17,640	13,640	15,420	26,567	194,427
Blocmer—													
Daily average	.....	.....	.....	.....	.....	.....	633	1,050	1,456	1,675	1,940	2,273	
Month	.....	.....	.....	.....	.....	.....	19,623	32,550	43,680	51,925	58,200	70,463	276,441
Peter—													
Daily average	.....	.....	.....	.....	.....	.....	321	384	549	608	744	967	
Month	.....	.....	.....	.....	.....	.....	9,951	11,904	16,470	18,848	22,320	29,977	109,470
Miscellaneous—													
Daily average	276	300	383	641	862	1,358	438	559	709	822	728	1,005	
Month	8,556	8,700	11,873	19,230.	26,722	40,740	13,578	17,329	21,270	25,482	21,840	31,155	246,675
BARBER COUNTY:													
Daily average	77	48	54	43	27	41	4	42	136	156	139	44	
Month	2,387	1,392	1,674	1,290	837	1,230	124	1,302	4,080	4,836	4,170	1,364	24,686
ELLSWORTH COUNTY:													
Breford—													
Daily average	249	337	288	282	340	243	259	438	367	392	387	337	
Month	7,719	9,773	8,928	8,460	10,540	7,290	8,029	13,578	11,010	12,152	11,616	10,447	119,542
Heiken—													
Daily average	96	90	92	88	89	87	86	89	96	81	75	59	
Month	2,976	2,610	2,852	2,640	2,759	2,610	2,666	2,759	2,880	2,511	2,250	1,829	31,342
Lorraine—													
Daily average	7,142	8,224	7,981	7,986	7,169	6,578	6,540	6,635	6,060	5,964	5,861	5,210	
Month	221,402	238,496	247,411	239,580	222,239	197,190	202,740	205,685	181,800	184,884	175,830	161,510	2,478,767
Stoltenberg—													
Daily average	709	657	699	652	614	561	571	559	537	510	496	437	
Month	21,979	19,053	21,669	19,560	19,034	16,830	17,701	17,329	16,110	15,810	14,880	13,547	213,502
Stratman—													
Daily average	367	417	369	390	369	297	367	369	357	345	329	338	
Month	11,377	12,093	11,439	11,700	11,439	8,910	11,377	11,439	10,710	10,695	9,870	10,478	131,527
Miscellaneous—													
Daily average	155	97	123	124	101	89	219	82	94	85	63	58	
Month	4,805	2,813	3,813	3,720	3,131	2,670	6,789	2,542	2,820	2,635	1,890	1,798	39,426
HARVEY COUNTY:													
Hollow-Nikkel—													
Daily average	4,693	4,330	4,482	4,571	4,085	3,823	3,849	3,996	3,723	3,680	3,698	3,589	
Month	145,483	125,570	138,942	137,130	126,635	114,690	119,319	123,876	111,690	114,080	110,940	111,259	1,479,704
Warkentine—													
Daily average	.....	.....	.....	.....	.....	.....	14	110	349	429	511	651	
Month	.....	.....	.....	.....	.....	.....	434	3,410	10,470	13,299	15,330	20,181	63,124
Miscellaneous—													
Daily average	87	101	115	119	212	168	118	242	106	83	118	150	
Month	2,697	2,929	3,565	3,570	6,572	5,040	3,658	7,502	3,180	2,573	3,540	4,650	49,476
KINGMAN COUNTY:													
Daily average	666	626	464	630	535	613	677	557	508	534	585	504	
Month	20,646	18,154	14,384	18,900	16,585	18,390	20,987	17,267	15,240	16,554	17,550	18,724	213,381
McPHERSON COUNTY:													
Graber—													
Daily average	314	287	361	494	761	532	1,353	1,843	1,844	1,987	2,050	2,606	
Month	9,734	8,323	11,191	14,820	23,591	15,960	41,943	57,133	55,320	61,597	61,500	80,786	441,898
Johnson and Chinberg—													
Daily average	1,090	1,003	1,060	1,084	1,052	903	953	1,059	956	897	795	859	
Month	33,790	29,087	32,860	32,520	32,612	27,090	30,473	32,829	28,680	27,807	23,850	26,629	358,227
McPherson—													
Daily average	580	489	465	501	482	483	461	423	375	386	359	477	
Month	17,980	14,181	14,415	15,030	14,942	14,490	14,291	13,113	11,280	11,966	10,770	14,787	167,245
Ritz-Canton—													
Daily average	7,317	6,406	6,954	6,785	6,561	6,157	6,533	6,314	6,057	5,753	5,744	6,307	
Month	226,827	185,774	215,574	203,550	203,391	184,710	202,523	195,734	181,710	178,343	172,320	195,517	2,345,973
Voshell—													
Daily average	3,382	3,264	3,281	3,272	3,148	2,828	2,902	3,017	2,891	2,731	2,731	2,753	
Month	104,842	94,656	101,711	98,160	97,588	84,840	89,962	93,527	86,730	84,661	81,930	85,343	1,103,950
Miscellaneous—													
Daily average	85	40	156	116	144	141	134	198	208	97	111	112	
Month	2,635	1,160	4,836	3,480	4,464	4,230	4,154	6,138	6,240	3,007	3,330	3,472	47,166

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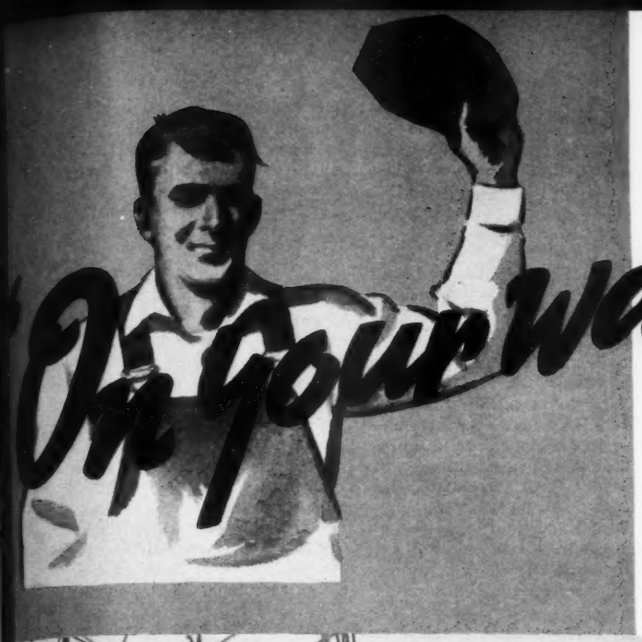
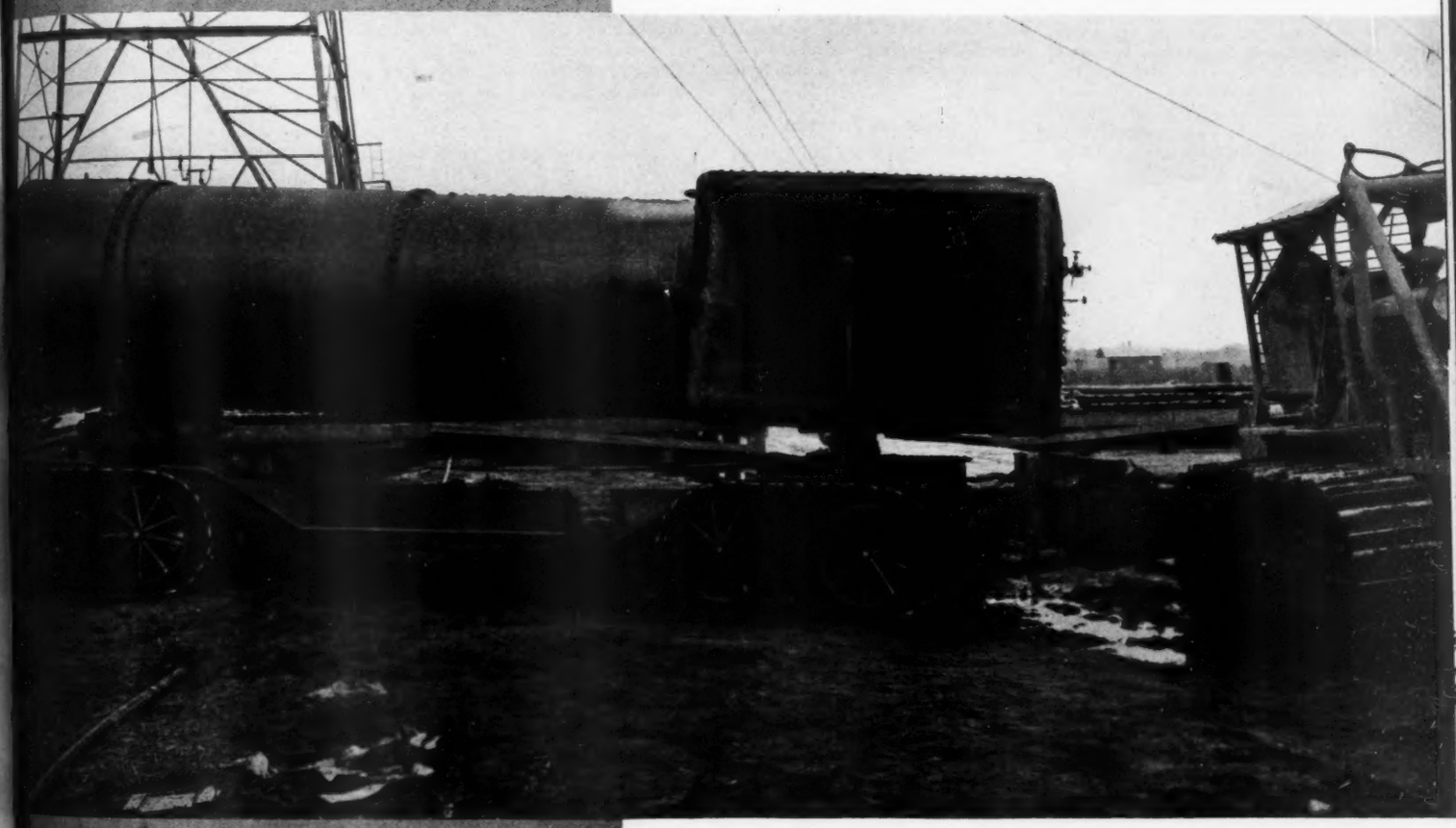


"On Your Way, Big Boy!"

...AND THE LOAD WILL GET THERE ON TIME



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the lead to Silica one week and regaining it the next. Its productive area also was enlarged, mainly to the south and west.

Several of the pools that were opened during the year have not been developed beyond the discovery stage, because of lack of market, pipe line connections and for other reasons. There were some, however, that soon took place among the state's leading areas.

Lerado Extension

Foremost among these is the Lerado pool, southwestern Reno County. It was discovered late in 1935, but the discovery well was not completed until March, 1936. It was Shell Petroleum Corp. No. 1 Reece, CWL SW section 11-26-9w, which originally made potential of 898 bbls. of oil, but later this was increased to 5,571 bbls. following acidization. The Shell company owned a big block surrounding the discovery well and for a time development was slow, the operators having scarcely more than one well drilling at a time. However, Empire Oil & Refining Co. extended the pool one-half mile west in October with a 7,153-bbl. well, and a short time later Ohio Oil Co. completed a 6,400-bbl. well on the west edge of the field. Development was expected to be more rapid in 1937. At the end of 1936 the 13 wells in the pool had total daily average potential of 84,513 bbls., making it one of the largest pools of the state in that respect. This is the outstanding Viola lime pool in Kansas, all production coming from that formation at around 4,100-4,200 feet.

The Hauschild-Saxman district of southern Rice County is another new area that took its place among the leading pools of Kansas in 1936. Early in April, L. E. Douglass, independent operator of Hutchinson, Kans., and associates opened the Hauschild pool at No. 1 Hauschild, NE NE NW section 15-21-7w. It topped pay at 3,369 feet, total depth 3,393 feet, flowed 1,054 bbls. of oil in six hours and made potential of 3,997 bbls. Later completions included several large producing wells, one with potential in excess of 10,000 bbls. daily and another with potential of about 15,000 bbls., and Hauschild took its place among the leading Kansas fields.

Strike at Saxman

The importance of the general Hauschild district, as included in Township 21, Range 7w, was enhanced early in October when Douglass, Sage and Yankey opened a new pool at No. 1 Patton, SW cor. section 5-21-7w, about 2½ miles northwest of Hauschild. It had Conglomerate at 3,329-37 feet and made potential of 1,137 bbls. It was deepened and completed in Chat at 3,365-66½ feet, total depth, late in December, making new potential of 1,560 bbls.

Still another sector in this general area was opened at Aylward and others No. 1 Johnson, NW NW NE section 17-21-7w, which also was completed late in December. It is southeast of the Saxman pool and west of the Hauschild pool. It had Conglomerate at 3,358-60 feet, was bottomed at 3,390 feet, and made potential of 2,818 bbls. Production horizon in these three pools—which many observers believe may be connected in 1937—is generally designated as Conglomerate, some call it the Chat, and others think part of the production may be from Mississippi lime.

The first pool to be opened in Township 21, Range 7w, during 1936 was the Ponce area, at Ralph Day No. 1 Ponce, NW NE NE section 28-21-7w, completed in July after finding pay several weeks earlier. It [illegible] about 2 miles south and slightly west of Hauschild. It pumped 135 bbls. of oil in 24 hours after acidizing Chat at 3,388-3,400 feet; total depth, 3,4[illegible] feet. A dry hole was drilled between the Ponce and Hauschild areas.

A Major Discovery

The Trapp pool of southern Russell County is another major discovery of 1936. It was opened by Coralena Oil Co. at No. 1 Trapp, SE cor. section 30-15-13w, in March. It had Siliceous lime pay at 3,252-53 feet, with initial production of 1,231 bbls. of oil in 24 hours after acidizing.

The North Trapp pool was opened in June at Coralena Oil Co. No. 1 Sellens, SW SE SW section 20-15-13w, which had Kansas City lime pay at 3,047-64 feet, total depth, pumping 598 bbls. of oil in 24 hours after acidizing. In August, W. I. Southern, Inc. discovered Siliceous lime pay in the area at No. 1 Sellens, NW NE NW section 29-15-13w, which produced 2,003 bbls. of oil naturally from lime at 3,270-75 feet. The joining of the Trapp and North Trapp pools appears imminent.

Township 15-13w in southern Russell County is similar to Township

Kansas (Continued)

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
RENO COUNTY:													
Abbyville—													
Daily average	141	143	147	179	149	118	158	154	138	112	111	118	
Month	4,371	4,147	4,557	5,370	4,619	3,540	4,898	4,774	4,140	3,472	3,330	3,658	59,976
Burrton—													
Daily average	12,857	12,471	13,846	15,561	14,809	11,798	14,430	17,033	16,057	14,794	14,176	14,132	
Month	398,567	361,659	429,226	466,830	459,079	353,940	447,330	528,023	481,710	458,614	425,280	438,092	5,249,350
Hilger—													
Daily average	234	317	397	491	597	586	716	924	1,352	1,279	1,212	1,396	
Month	7,254	9,193	12,307	14,730	18,507	17,580	22,196	28,644	40,560	39,649	36,360	43,276	290,346
Lerado—													
Daily average	587	526	648	919	837	798	1,189	1,191	974	1,124	1,071	1,191	
Month	18,197	15,254	20,088	27,570	25,947	23,940	36,859	36,921	29,220	34,844	32,130	36,921	337,891
Miscellaneous—													
Daily average	110	133	110	162	199	168	161	192	141	132	124	240	
Month	3,410	3,857	3,410	4,860	6,169	5,040	4,991	5,952	4,230	4,092	3,720	7,440	57,171
RICE COUNTY:													
Gouldner—													
Daily average	253	223	287	312	424	383	323	352	320	303	209	199	
Month	7,843	6,467	8,897	9,360	13,144	11,490	10,013	10,912	9,600	9,393	6,270	6,169	109,558
Brandenstein—													
Daily average	132	121	128	134	122	113	114	122	109	96	96	111	
Month	4,092	3,509	3,968	4,020	3,782	3,390	3,534	3,782	3,270	2,976	2,880	3,441	42,644
Chase—													
Daily average	10,002	9,596	10,264	10,079	9,422	9,756	9,480	9,959	9,194	8,823	8,799	9,009	
Month	310,062	278,284	318,184	302,370	292,082	292,680	293,880	308,729	275,820	273,513	263,970	279,279	3,438,853
Genesseo—													
Daily average	449	392	416	638	781	1,121	1,411	1,579	1,648	1,562	1,542	1,763	
Month	13,919	11,368	12,896	19,140	24,211	33,630	43,741	48,949	49,440	48,422	46,260	54,653	406,629
Orth—													
Daily average	187	184	230	212	208	231	257	273	264	253	239	277	
Month	5,797	5,336	7,130	6,360	6,448	6,930	7,967	8,463	7,920	7,843	7,170	8,587	85,951
Silica—													
Daily average	4,751	5,165	6,737	9,512	10,526	10,233	11,581	13,589	13,364	11,770	12,145	14,545	
Month	147,281	149,785	208,847	285,360	326,306	306,990	359,011	421,259	400,920	364,870	364,350	450,895	3,785,871
Keesling—													
Daily average	1,985	1,689	2,143	2,660	2,648	2,616	2,647	3,039	2,795	2,542	2,005	2,258	
Month	61,535	48,981	66,433	79,800	82,088	78,480	82,057	94,209	83,850	78,802	60,150	69,998	886,383
Ploog—													
Daily average	582	533	660	688	633	610	559	583	549	513	429	495	
Month	18,042	15,457	20,460	20,640	19,623	18,300	17,329	18,073	16,470	15,903	12,870	15,345	209,512
Raymond—													
Daily average	2,463	2,610	3,147	3,401	3,761	3,464	3,096	3,386	3,102	2,854	2,862	2,941	
Month	76,353	75,690	97,557	102,030	116,591	103,920	95,976	104,966	93,060	88,474	85,860	91,171	1,131,648
Edwards—													
Daily average	.....	.....	.....	273	303	581	551	604	820	907	929	1,187	
Month	.....	.....	.....	8,190	9,393	17,430	17,081	18,724	24,600	28,117	27,870	36,797	188,202
Stumpe—													
Daily average	271	313	395	394	331	476	469	467	552	567	543	545	
Month	8,401	9,077	12,245	11,820	10,261	14,280	14,539	14,477	16,560	17,577	16,290	16,895	162,422
Wherry—													
Daily average	170	160	199	198	253	234	176	198	197	189	164	163	
Month	5,270	4,640	6,169	5,940	7,843	7,020	5,456	6,138	5,910	5,859	4,920	5,053	70,218
Welch—													
Daily average	675	648	652	658	626	609	577	545	584	627	1,063	501	
Month	20,925	18,792	20,212	19,740	19,406	18,270	17,887	16,895	17,520	19,437	31,890	15,531	236,505
Hauschild—													
Daily average	.....	.....	.....	.....	.....	1,307	1,086	1,751	1,979	1,924	2,157	2,750	
Month	.....	.....	.....	.....	.....	39,210	33,666	54,281	59,370	59,644	64,710	85,250	396,131
Schartz—													
Daily average	.....	.....	.....	.....	.....	.....	24	144	271	583	702	913	
Month	.....	.....	.....	.....	.....	.....	744	4,464	8,130	18,073	21,060	28,303	80,774
Miscellaneous—													
Daily average	123	113	195	205	271	84	461	565	581	514	563	1,113	
Month	3,813	3,277	6,045	6,150	8,401	2,520	14,291	17,515	17,430	15,934	16,890	34,503	146,769
ROOKS COUNTY:													
Daily average	38	21	34	35	25	127	218	73	169	293	150	151	
Month	1,178	609	1,054	1,050	775	3,810	6,758	2,263	5,070	9,083	4,500	4,681	40,031
RUSH COUNTY:													
Daily average	13	26	59	7	104	131	73	133	188	194	161	216	
Month	403	754	1,829	210	3,224	3,930	2,263	4,123	5,640	6,014	4,830	6,696	39,916
RUSSELL COUNTY:													
Fairport—													
Daily average	2,825	2,521	2,747	2,781	2,711	2,596	2,611	2,291	2,350	2,304	2,309	2,332	
Month	87,575	73,109	85,157	83,430	84,041	77,880	80,941	71,021	70,500	71,424	69,270	72,292	926,640
Gorham-E. Gorham—													
Daily average	3,558	4,175	4,565	4,612	4,056	3,910	4,509	5,034	5,309	5,402	6,126	6,507	
Month	110,298	121,075	141,515	138,360	125,736	117,300	139,779	156,054	159,270	167,462	183,780	201,717	1,762,546

(Continued on Next Page)

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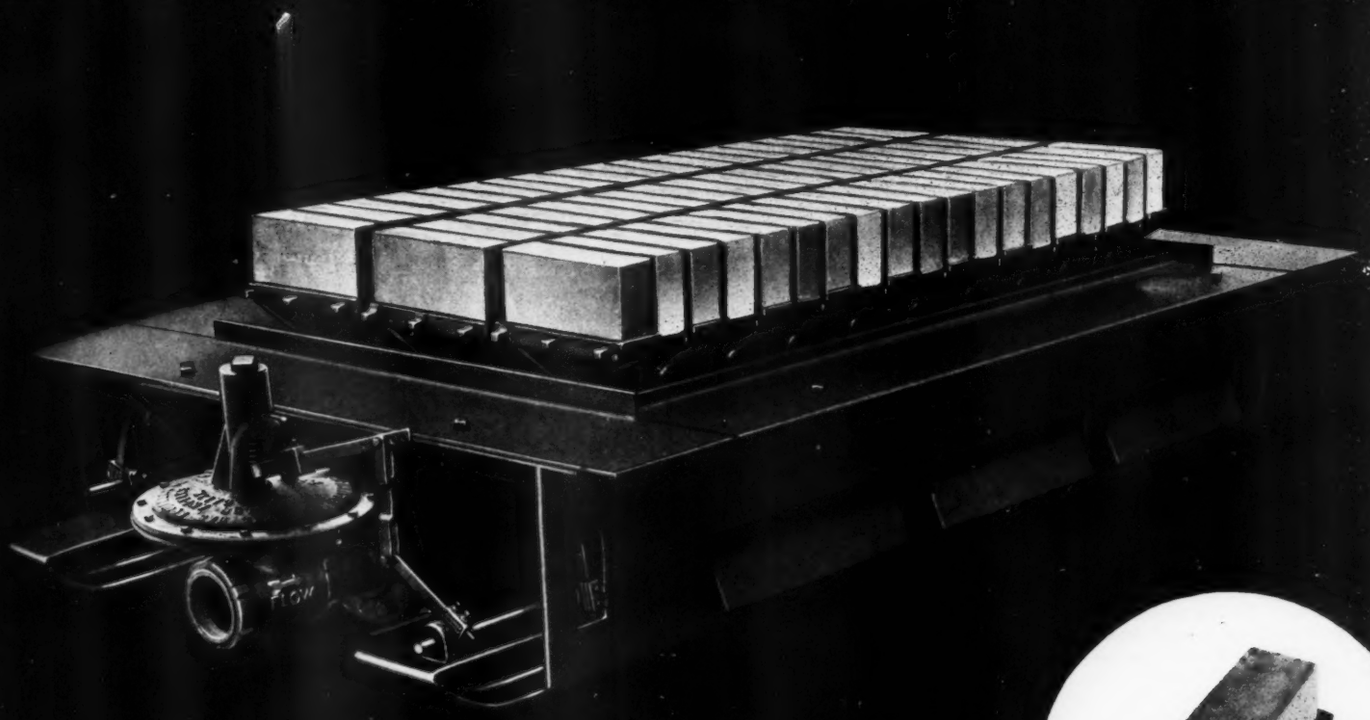

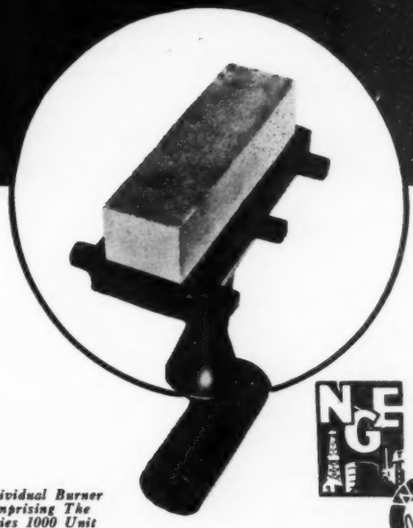

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21-7w, Rice County, in that it has several pools which have not been defined and which may eventually be joined. The Sellens and Eichman pools, opened in 1929 and 1935, respectively, are to the east of Trapp, and in the same township. They have never been defined, and the Trapp pool is being extended in the direction of Eichman.

To the north of the Trapp area, the Coralena pool was opened in October at Coralena Oil Co. No. 1 Sellens, NW cor. section 17-15-13w. It made potential of 1,276 bbls. of oil after acidizing Topeka lime at 2,620-2,881 feet.

The Ochs pool is to the west of Trapp, in Township 15-14w, and Trapp production was reaching out in that direction as the year ended.

In Barton County

Across the line, south of the Trapp district and in northern Barton County, two wildcat wells were completed as pool openers in December. One was Armer & Vernon Oil & Gas Co. No. 1 Ainsworth, NE NE SE section 33-16-13w, about 6 miles south of Trapp. It made potential of 1,241 bbls. from Siliceous lime at 3,393-95 feet, total depth. About midway between it and the Trapp pool, C. L. Price No. 1 Deutsch, wildcat in NW NW NE section 16-16-13w, topped Siliceous lime at 3,386 feet; total depth, 3,390½ feet, and made potential of 939 bbls. of oil in 24 hours, down four hours. This whole general area in southern Russell and northern Barton counties was due to get a big play in 1937.

Other areas that were opened in 1936 and became major Kansas pools before the end of the year were the Bloomer sector of Barton County and the Warkentine field of Harvey County.

The Bloomer pool was opened in February by Yarnell, Carlson & Spencer at No. 1 Bloomer, NE NW section 36-17-11w, near Claflin in eastern Barton County. It topped Siliceous lime at 3,257 feet, had pay at 3,271 feet and was bottomed at 3,281 feet. It was given initial production rating of 2,117 bbls. of 44 gravity oil after acid treatment. Numerous producers, some large, were completed in the area in subsequent months.

Discovery in Harvey

It was in April that Western Kansas Oil & Refining Co. opened the Warkentine pool at No. 1 Warkentine, C SW SW section 1-23-2w, west of Newton, in Harvey County. It topped Chat, producing formation for Warkentine wells, at 2,970 feet, was bottomed at 3,001 feet and made potential of 569 bbls. daily. Development was leisurely, and up to December 1 only six wells with total potential of 8,292 bbls. had been completed. The pool received its biggest impetus in December when wells making potentials of nearly 5,000 bbls. and nearly 10,000 bbls. daily were completed.

An important Barton County strike of the year was at Simpson-Noble Drilling Co. No. 1 Hiss, C NW NE section 31-20-13w, which opened the Hiss pool in May. It produced 1,316 bbls. of oil after acidizing Kansas City lime at 3,205-85 feet, total depth. The area attracted little attention, however, until December when a southeast diagonal offset to the discovery was completed for an estimated 10,000 bbls. of oil daily.

A strike that caused considerable excitement and was followed by a spirited leasing campaign in two states came when Olson Oil Co. opened the first oil pool in Clark County, southwestern Kansas. It was at No. 3 Morrison, C SE SW section 17-32-21w, which was completed in November. After acidizing, it flowed 622 bbls. of 40.8 gravity oil at 60 degrees in six hours and was given a potential of 2,358 bbls. in 24 hours. Production was from Viola lime at 6,478-81 feet. This strike indicates the possibility of finding Ordovician producing formations in southwestern Kansas and northwestern Oklahoma areas in which a leasing play followed the strike.

Wildcatter's Favorite

Ellis County led all other counties in number of wildcat completions, with 12 discoveries and 21 dry holes. An important strike was the discovery of a deeper pay zone in the Bemis pool in March when Margay Oil Co. No. 1 Bemis A, SW cor. section 15-11-17w, found production in Siliceous lime at 3,380-82 feet, and made potential of 1,353 bbls. when completed in April. Other Ellis County strikes, summarized, were as follows:

Lario Oil & Gas Co. No. 1 Walters, SE NE SW section 2-12-18w, completed in May; Topeka lime, 3,030 feet; total depth, 3,165 feet; initial capacity, 1,159 bbls. after acidizing. Uscan Oil Co. and others No. 1 Hadley, SE NE section 21-11-17w; completed in May; Siliceous lime, 3,344 feet; pay, 3,350-60 feet, total depth; acidized; initial production, 2,037 bbls.

Twin Drilling Co. No. 2 Goetz, NE SW SE section 3-14-17w, discovered Siliceous lime production in the Victoria pool in June; previous Victoria production was from Oswald lime. No. 2 Goetz had Siliceous at 3,512-60 feet, total depth, acidized and produced 412 bbls.

Jones Brothers Drilling Co. No. 1 Solomon, SE SW section 28-11-19w, completed in June; flowed 600 bbls. naturally from Siliceous lime at 3,629-32 feet.

Harris & Haun No. 1 Schmeidler, SE SW section 3-13-17w, completed in June; acidized and produced 676 bbls. of oil from Oswald lime at 3,274-3,362 feet, total depth.

Some June Completions

Bridgeport Machine Co. No. 1 Madden, NE NW NW section 26-15-18w, completed in June; topped Oswald, 3,260 feet; pay, 3,331-41 feet, total depth; acidized and produced 400 bbls. of oil. This wildcat was deep-

Kansas (Continued)

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
Hall—													
Daily average	495	408	736	763	648	764	786	757	732	699	642	738	
Month	15,345	11,832	22,816	22,890	20,088	22,920	24,366	23,467	21,960	21,669	19,260	22,878	249,491
Neidenthal—													
Daily average	676	695	757	843	736	655	652	608	572	530	511	489	
Month	20,956	20,155	23,467	25,290	22,816	19,650	20,212	18,848	17,160	16,430	15,330	15,159	235,473
Ochs—													
Daily average	376	361	330	332	335	383	336	309	288	304	321	308	
Month	11,656	10,469	10,230	9,960	10,385	11,490	10,416	9,579	8,640	9,424	9,630	9,548	113,427
Russell-West Russell—													
Daily average	2,542	3,512	3,475	3,421	2,273	2,179	2,828	2,963	2,779	3,198	3,418	3,199	
Month	78,802	101,848	107,725	102,630	70,463	65,370	87,668	91,543	83,370	99,138	102,540	99,169	1,093,266
Big Creek—													
Daily average	.....	.....	221	275	292	218	194	203	188	146	151	144	
Month	.....	.....	6,851	8,250	9,052	6,540	6,014	6,293	5,640	4,526	4,530	4,464	62,160
Sellens—													
Daily average	821	797	1,020	1,164	976	1,098	944	1,060	1,023	933	986	768	
Month	25,451	23,113	31,620	34,920	30,256	32,940	29,264	32,860	30,690	28,923	29,580	23,808	353,425
Sullivan—													
Daily average	1,645	2,230	2,861	3,170	3,538	2,527	2,492	2,773	2,363	2,570	2,754	3,577	
Month	50,995	64,670	88,691	95,100	109,678	75,810	77,252	85,963	70,890	79,670	82,620	110,887	992,226
Eichman—													
Daily average	301	670	818	833	665	627	562	566	497	507	529	427	
Month	9,331	19,430	25,358	24,990	20,615	18,810	17,422	17,546	14,910	15,717	15,870	13,237	213,236
Gurney—													
Daily average	199	335	221	338	382	351	384	393	416	476	411	726	
Month	6,169	9,715	6,851	10,140	11,842	10,530	11,904	12,183	12,480	14,756	12,330	22,506	141,406
Harbaugh—													
Daily average	.....	.....	.....	.....	.....	.....	356	535	511	590	636	738	
Month	.....	.....	.....	.....	.....	.....	11,036	16,585	15,330	18,290	19,080	22,878	103,199
Trapp and North Trapp—													
Daily average	.....	.....	.....	.....	.....	.....	917	1,280	1,935	2,676	2,980	3,087	
Month	.....	.....	.....	.....	.....	.....	28,427	39,680	58,050	82,956	89,400	95,697	394,210
Atherton—													
Daily average	74	345	377	480	521	233	234	234	266	312	311	271	
Month	2,294	10,005	11,687	14,400	16,151	6,990	7,254	7,264	7,980	9,672	9,330	8,401	111,418
Miscellaneous—													
Daily average	163	168	641	1,216	1,313	1,522	688	991	830	1,153	976	727	
Month	5,053	4,872	19,871	36,480	40,858	45,660	21,328	30,721	24,900	35,743	29,280	22,537	317,303
SCOTT COUNTY:													
Daily average	.....	.....	.....	103	24	.....	15	11	.....	27	19	.....	
Month	.....	.....	.....	3,090	744	.....	465	341	.....	837	570	.....	6,047
STAFFORD COUNTY:													
Gates—													
Daily average	235	234	211	216	184	178	172	165	156	146	142	236	
Month	7,285	6,786	6,541	6,480	5,704	5,340	5,332	5,115	4,680	4,526	4,260	8,866	70,915
Richardson—													
Daily average	1,217	1,137	1,233	1,416	1,177	1,121	1,289	1,286	1,329	1,249	1,259	1,821	
Month	37,727	32,973	38,223	42,480	36,487	33,630	39,959	39,866	39,870	38,719	37,770	56,451	474,155
Riley—													
Daily average	256	274	369	354	310	332	378	432	378	343	330	122	
Month	7,936	7,946	11,439	10,620	9,610	9,960	11,718	13,392	11,340	10,633	9,900	3,782	118,279
St. John—													
Daily average	52	135	81	34	139	506	54	40	26	134	68	60	
Month	1,612	3,915	2,511	1,020	4,309	15,180	1,674	1,240	780	4,154	2,040	1,869	40,295
Snider—													
Daily average	.....	.....	.....	.....	.....	.....	38	140	252	215	126	127	
Month	.....	.....	.....	.....	.....	.....	1,178	4,340	7,560	6,665	3,780	3,937	27,460
Miscellaneous—													
Daily average	.....	.....	15	78	62	62	153	135	.....	.....	.....	.....	
Month	.....	.....	465	2,340	1,922	1,860	4,743	4,185	.....	.....	.....	.....	15,515
ELLIS COUNTY:													
Daily average	491	543	930	1,576	1,274	1,275	2,187	2,947	2,974	3,161	3,341	3,985	
Month	15,221	15,747	28,830	47,280	42,594	38,250	67,797	91,357	89,220	97,991	100,230	123,535	758,153
EDWARDS COUNTY:													
Daily average	36	.....	.....	31	.....	.....	.....	.....	38	7	.....	.....	
Month	1,116	.....	.....	930	.....	.....	.....	.....	1,140	217	.....	.....	2,403

(Continued on Next Page)

ened and discovered Siliceous lime pay at 3,589-3,595 feet, total depth, in October, producing 619 bbls. after acidizing.

Twin Drilling Co. opened the Antonino pool in June at No. 1 Copeland, NE SW section 26-14-19w; topped Conglomerate at 3,695 feet; had pay at 3,703-10 feet, total depth: produced 410 bbls. of oil naturally in 24 hours.

Kansas Development Corp. No. 1 Haller, SE NW section 10-11-18w, completed in July; Topeka lime, 2,915 feet; pay, 3,036-50 feet, total depth; acidized and produced 531 bbls. of oil.

Vickers Petroleum Co. No. 1 Kraus, SW NW section 22-14-19w, completed in July; Siliceous lime, 3,735-40 feet, total depth; produced 259 bbls. of oil, naturally.

Kansas Oil & Gas Corp. No. 1 Penny-Wann, SE cor. section 13-15-20w, completed in September; Conglomerate, 3,653-58 feet, total depth; initial production, 456 bbls. of oil naturally.

More Ellis Pools

Bridgeport Machine Co. No. 1 Ubert, NE NE NW section 12-13-18w, completed in November; made potential of 418 bbls. of oil, with 20 per cent water, from Siliceous lime at 3,598-3,624 feet, after plugging back from 3,707 feet, total depth.

Lario Oil & Gas Co. No. 1 Marshall, NW SE NE section 36-11-18w, completed in November; Siliceous lime, 3,638 feet; total depth, 3,650 feet; potential, 795 bbls. of oil, down four hours in 24-hour test. And with that, Ellis County rested its wildcat record for 1936.

Russell County yielded little to Ellis in the matter of wildcat completions and discoveries. In addition to numerous pool extensioners and new pay discoveries, 10 wildcats were completed as pool openers. They included the following:

R. C. Tarrant No. 1 Williamson, SE NW section 9-14-14w, made potential of 243 bbls. from the Tarkio lime at 2,515-50 feet, total depth, and was completed in February. Central Petroleum Co. No. 1-C Benso, SE SE SW section 9-14-15w, had Oswald lime at 3,035-96 feet, total depth, made potential of 292 bbls. in February. Hartman & Blair No. 1 Harbaugh, NE NE SW section 25-14-15w, had Oswald lime at 2,908-50 feet in March, acidized and produced 788 bbls. daily. Siliceous lime production later was found in this area. Sam Murphy and others No. 1 Anschutz opened a pool in SW cor. section 10-15-13w, in April. It had Siliceous lime at 3,311-27 feet, total depth, and made potential of 515 bbls.

Oswald Lime Well

Darby Petroleum Co. and Continental Oil Co. opened a pool in June at No. 1 Letch, SE NE NW section 34-14-13w. It made potential of 419 bbls. of oil from Oswald lime at 2,831-80 feet, after plugging back from 3,265 feet. Lario Oil & Gas Co. No. 1 Steinert, NW NW SW section 21-15-15w, was completed in August, making potential of 729 bbls. of oil, cutting 20 per cent water, from Oswald

Kansas (Continued)

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
GREENWOOD AND WOODSON:													
Fixley—													
Daily average	311	268	429	457	556	551	640	564	546	552	491	540	
Month	9,641	7,772	13,299	13,710	17,236	16,530	19,840	17,484	16,380	17,112	14,730	16,740	180,474
Browning—													
Daily average	485	483	527	514	494	512	527	494	532	469	505	496	
Month	15,035	14,007	16,337	15,420	15,314	15,360	16,337	15,314	15,960	14,539	15,150	15,376	184,149
Burkett—													
Daily average	219	218	247	226	235	231	250	235	245	233	214	228	
Month	6,789	6,322	7,657	6,780	7,285	6,930	7,750	7,285	7,350	7,223	6,420	7,068	84,859
DeMalorie-Sowder—													
Daily average	492	469	492	525	521	519	532	469	509	483	495	476	
Month	15,252	13,601	15,252	15,750	16,151	15,570	16,492	14,539	15,270	14,973	14,850	14,756	182,456
Dunaway—													
Daily average	223	209	253	289	264	272	271	266	271	254	234	231	
Month	6,913	6,061	7,843	8,670	8,184	8,160	8,401	8,246	8,130	7,874	7,020	7,161	92,663
Hamilton—													
Daily average	447	420	447	472	420	460	461	474	420	455	432	439	
Month	13,857	12,180	13,857	14,160	13,020	13,800	14,291	14,694	12,600	14,105	12,960	13,609	163,133
Lamont—													
Daily average	451	450	432	446	425	433	407	390	398	407	445	416	
Month	13,981	13,050	13,392	13,380	13,175	12,990	12,617	12,090	11,940	12,617	13,350	12,896	155,478
Madison—													
Daily average	775	767	809	791	778	769	734	737	717	702	751	719	
Month	24,025	22,243	25,079	23,730	24,118	23,070	22,754	22,847	21,510	21,762	22,530	22,289	275,957
Quincy—													
Daily average	799	756	793	759	1,168	1,010	1,256	1,190	1,292	1,216	1,220	1,236	
Month	24,769	21,924	24,583	22,770	35,898	30,300	38,936	36,890	38,760	37,696	36,600	38,316	387,442
Sallyards—													
Daily average	468	448	495	471	496	480	502	492	480	469	488	476	
Month	14,508	12,992	15,345	14,130	15,376	14,400	15,562	15,252	14,400	14,539	14,640	14,756	175,900
Seeley-Wick—													
Daily average	1,043	1,042	1,109	1,172	1,138	1,144	1,164	1,107	1,064	1,067	968	1,019	
Month	32,333	30,218	34,379	35,160	35,278	34,320	36,084	34,317	31,920	33,077	29,040	31,589	397,715
Teeter-Scott—													
Daily average	997	903	1,031	1,078	1,036	1,049	1,011	954	1,015	987	928	937	
Month	30,907	26,187	31,961	32,340	32,116	31,470	31,341	29,574	30,450	30,597	27,840	29,047	363,830
Thrall-Agard—													
Daily average	546	514	583	583	575	569	566	549	545	558	535	535	
Month	16,926	14,906	18,073	17,490	17,825	17,070	17,546	17,019	16,350	17,298	16,050	16,585	203,138
Virgil-North Virgil—													
Daily average	1,278	1,112	1,409	1,455	1,350	1,370	1,469	1,412	1,424	1,468	1,407	1,419	
Month	39,618	32,248	43,679	43,650	41,850	41,100	45,539	43,772	42,720	45,508	42,210	43,989	505,883
Wiggins—													
Daily average	147	139	133	150	120	132	140	154	140	158	159	152	
Month	4,557	4,031	4,123	4,500	3,729	3,960	4,340	4,774	4,200	4,898	4,770	4,712	52,585
Winter-Scheid—													
Daily average	704	586	806	811	774	780	1,018	1,009	959	961	858	910	
Month	21,824	16,994	24,986	24,330	23,994	23,400	31,558	31,279	28,770	29,791	25,740	28,210	310,876
Reece—													
Daily average	130	134	130	104	139	136	112	123	129	118	127	119	
Month	4,030	3,886	4,030	3,120	4,309	4,080	3,472	3,813	3,870	3,658	3,810	3,689	45,767
Miscellaneous—													
Daily average	580	573	677	646	662	658	640	761	632	692	636	662	
Month	17,980	16,617	20,987	19,380	20,522	19,740	19,840	23,591	18,960	21,452	19,080	20,522	238,671
SUMNER COUNTY:													
Oxford—													
Daily average	9,590	8,739	8,237	7,215	5,325	5,262	4,253	3,904	3,616	3,030	2,729	3,173	
Month	297,290	253,431	255,347	216,450	165,075	157,860	131,843	121,024	108,480	93,930	81,870	98,363	1,980,963
Churchill—													
Daily average	1,356	962	1,120	1,011	962	971	992	1,050	1,095	1,049	938	983	
Month	42,036	27,898	34,720	30,330	29,822	29,130	30,752	32,550	32,850	32,519	28,140	30,473	381,220
Wellington—													
Daily average	1,295	1,252	1,356	1,751	1,649	1,250	1,772	2,077	2,298	2,303	2,590	2,562	
Month	40,145	36,308	42,036	52,530	51,119	37,500	54,932	64,387	68,940	71,392	77,700	79,422	676,412
Padgett—													
Daily average	267	313	290	306	280	276	281	301	296	275	276	282	
Month	8,277	9,077	8,990	9,180	8,680	8,280	8,711	9,331	8,880	8,525	8,280	8,742	104,953
Miscellaneous—													
Daily average	208	246	216	225	221	225	221	252	259	282	259	247	
Month	6,448	7,134	6,696	6,750	6,851	6,750	6,851	7,812	7,770	8,742	7,770	7,657	87,231
MARION COUNTY:													
Daily average	1,123	1,093	1,269	1,267	1,053	1,143	1,169	1,151	1,065	1,108	968	1,046	
Month	34,813	31,697	39,339	38,010	32,643	34,290	36,239	35,681	31,950	34,348	29,040	32,426	410,476
BUTLER COUNTY:													
Elbing—													
Daily average	1,015	1,072	1,156	1,226	1,104	1,210	1,150	1,141	1,115	1,228	1,201	1,190	
Month	31,465	31,088	35,836	36,780	34,224	36,300	35,650	35,371	33,450	38,068	36,030	36,890	421,152
Potwin—													
Daily average	1,235	1,173	1,197	1,213	1,180	1,186	1,254	1,226	1,229	1,231	1,154	1,163	
Month	38,285	34,017	37,107	36,390	36,580	35,580	38,874	38,006	36,870	38,161	34,620	36,053	440,543
South Augusta—													
Daily average	1,134	1,110	1,193	1,184	1,170	1,172	1,227	1,174	1,107	1,136	1,131	1,127	
Month	35,154	32,190	36,983	35,520	36,270	35,160	38,037	36,394	33,210	35,216	33,930	34,937	423,001
North Augusta—													
Daily average	434	434	450	433	419	418	394	425	407	427	410	414	
Month	13,454	12,586	13,950	12,990	12,989	12,540	12,214	13,175	12,210	13,237	12,300	12,834	154,479
Young—													
Daily average	121	128	129	133	115	120	128	124	132	107	124	110	
Month	3,751	3,712	3,999	3,990	3,565	3,600	3,968	3,844	3,960	3,317	3,720	3,410	44,836
Garden—													
Daily average	229	199	218	223	245	239	253	258	280	236	245	239	
Month	7,099	5,771	6,758	6,690	7,595	7,170	7,843	7,998	8,400	7,316	7,350	7,409	87,399
Sims-Snock—													
Daily average	189	183	209	202	197	196	192	194	204	183	193	196	
Month	5,859	5,307	6,479	6,060	6,107	5,880	5,952	6,014	6,120	5,673	5,790	6,076	71,317

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lime at 3,000-97 feet. Braden & McClure No. 1 Herbel, NE NE NW section 35-14-14w, made potential of 220 bbls. of oil and was completed in October in Gorham sand at 3,165-68 feet, total depth.

Rice County was another popular sector with the wildcatters, a total of eight discoveries being completed, against 19 failures. Discoveries not already mentioned included:

C. E. Skiles and others No. 1 Edwards, NW NW NE section 3-18-8w, had Siliceous lime at 3,278-82 feet, total depth, and made potential of 550 bbls. Shell Petroleum Corp. and others No. 1 Haferman, NW NE SE section 6-19-9w, completed in July, making potential of 1,719 bbls. from Siliceous lime at 3,192-3,216 feet, total depth. Hartman & Blair No. 1 Schartz, NE SE SE section 33-19-10w, east extension to the Silica district, was completed in June, making potential of 557 bbls. from Siliceous lime at 3,310-18 feet, total depth. Simpson-Noble Drilling Co. and others No. 1 Bowman, SW SW NW section 22-19-10w, completed in August, made potential of 58 bbls. of oil, with water, plugged back from 3,305 feet to 3,297 feet, in Siliceous lime.

Siliceous Gas Well

A Siliceous lime gas pool was opened in Rice County in August at Simpson-Noble Drilling Co. No. 1 Pulliam, C S half N half NE section 35-19-8w. It produced 75,000,000 feet of gas from lime at 3,279-3,385 feet, plugged back from 4,085 feet. It was said to be the first Kansas well producing only gas from Siliceous lime, although combination oil and gas wells had been completed in that formation. In September, John Stark No. 1 Doran, NE NE SE section 13-19-10w, had Siliceous lime at 3,291-3,311 feet, total depth, and after acidizing made potential of 1,366 bbls.

A pool was opened in Pawnee County in September at Simpson-Noble No. 1 Gates, SW cor. section 13-20-16w. It had Siliceous lime at 3,815-41 feet, total depth, acidized and made potential of 257 bbls. of oil.

In Ness County, Continental Oil Co. No. 1 Thompson, C E half SW section 13-18-26w, opened a pool in June but was not finally completed until September. It had Siliceous lime at 4,446 feet, drilled to 4,527 feet, where water intruded, and plugged back to 4,492 feet. After acid treatment, it made potential of 684 bbls.

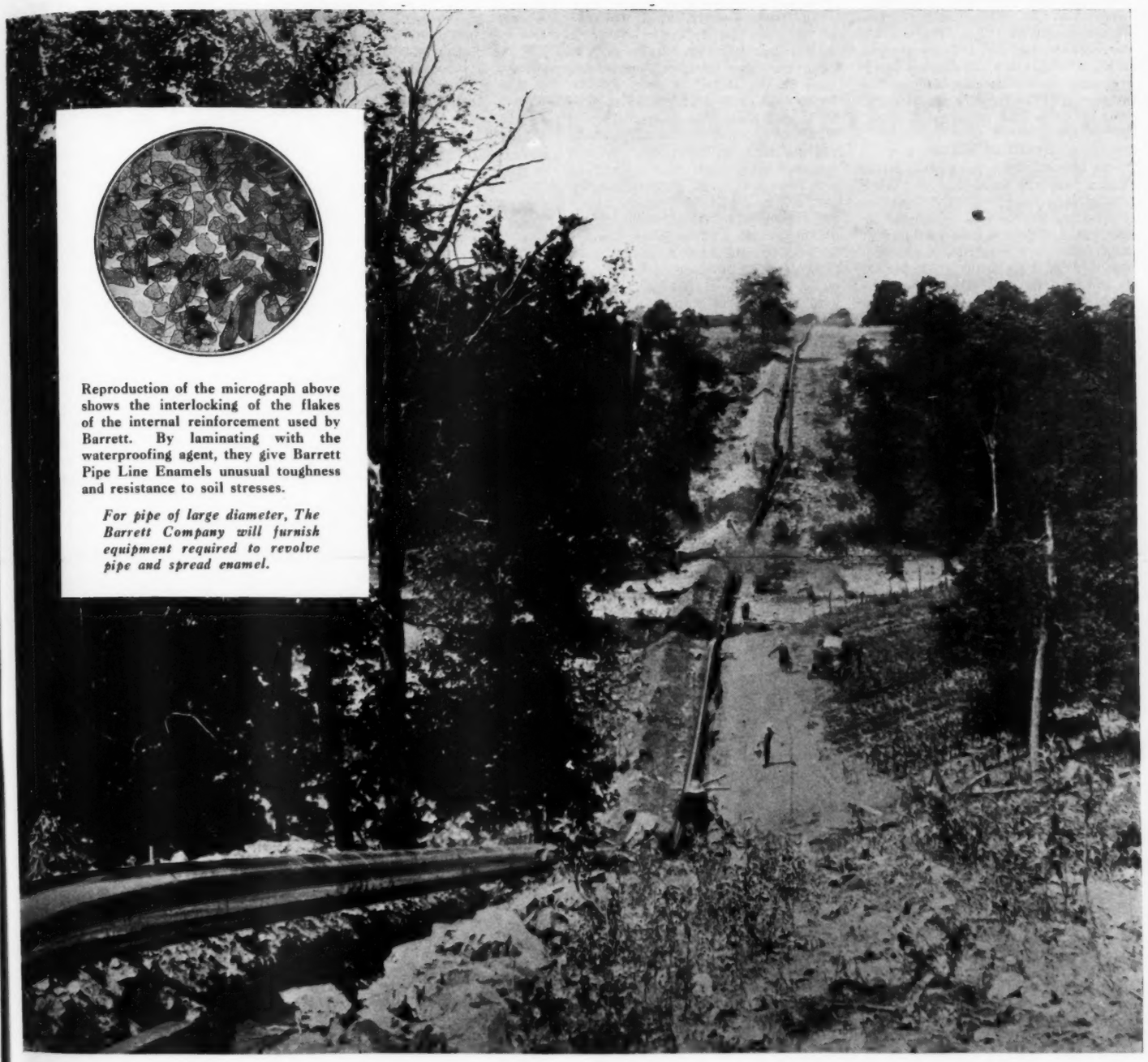
The only wildcat discovery in McPherson County was at Empire Oil & Refining Co. No. 1 Cunningham, SE cor. section 26-18-1w, which opened up the North Canton pool in July. After acidizing, it made potential of 830 bbls. from Chat at 2,809-32 feet, total depth.

A Stafford County pool opener was L. A. Farris and others No. 1 Snyder, SE SE NW section 3-21-11w, completed in April. It had initial yield of 290 bbls. after acidizing Kansas City lime at 3,070-3,111 feet, total depth. Later, it was deepened to 3,138 feet

Kansas (Continued)

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
Kramer—													
Daily average	280	219	272	273	261	266	221	252	255	233	222	258	
Month	8,680	6,351	8,432	8,190	8,091	7,980	6,851	7,812	7,650	7,223	6,660	7,998	91,918
Haverhill—													
Daily average	326	315	308	350	344	349	336	363	337	339	315	325	
Month	10,106	9,135	9,548	10,500	10,664	10,470	10,416	11,253	10,110	10,509	9,450	10,075	122,236
Eldorado—													
Daily average	9,870	9,236	9,850	9,802	9,871	9,860	9,630	9,558	9,467	9,215	9,353	9,297	
Month	305,970	267,844	305,350	294,060	306,001	295,800	298,530	262,298	284,010	285,665	280,590	288,207	3,504,325
Leon—													
Daily average	94	62	66	65	70	66	66	71	74	80	89	80	
Month	2,914	1,798	2,046	1,950	2,170	1,980	2,046	2,201	2,220	2,480	2,670	2,480	26,955
Fox-Bush—													
Daily average	503	468	503	511	515	520	509	502	454	482	450	456	
Month	15,593	13,572	15,593	15,330	15,965	15,600	15,779	15,562	13,620	14,942	13,500	14,136	173,192
Douglas—													
Daily average	95	118	124	109	104	111	94	90	96	84	75	82	
Month	2,945	3,422	3,844	3,270	3,224	3,330	2,914	2,790	2,880	2,604	2,250	2,542	36,615
Keighley—													
Daily average	131	131	142	199	233	218	225	231	207	218	202	203	
Month	4,061	3,799	4,402	5,970	7,223	6,540	6,975	7,161	6,210	6,758	6,060	6,293	71,452
Reynolds-Schaffer—													
Daily average	.....	.....	.....	.....	.....	.....	463	492	449	409	358	368	
Month	.....	.....	.....	.....	.....	.....	14,353	15,252	13,470	12,679	10,740	11,408	77,902
Blankenship—													
Daily average	269	243	293	267	284	283	293	253	256	298	253	255	
Month	8,339	7,047	9,083	8,010	8,804	8,490	9,083	7,843	7,680	9,238	7,590	7,905	99,113
Miscellaneous—													
Daily average	978	1,091	1,139	839	451	502	826	891	810	844	871	861	
Month	30,318	31,639	35,309	25,170	13,981	15,060	25,606	27,621	24,300	26,164	26,130	26,691	287,993
SEDGWICK COUNTY:													
Valley Center—													
Daily average	2,034	2,028	2,041	2,212	2,090	1,317	1,205	1,164	1,213	1,209	1,138	1,294	
Month	63,054	58,812	63,271	66,360	64,790	39,510	37,355	36,084	36,390	37,479	34,140	40,114	577,359
Greenwich—													
Daily average	1,475	1,401	1,373	1,490	1,446	1,276	1,316	1,340	1,328	1,287	621	1,233	
Month	45,725	40,629	42,563	44,700	44,826	38,280	40,796	41,540	39,840	39,897	18,630	38,223	475,649
Robbins—													
Daily average	1,767	1,617	1,548	1,438	1,364	1,486	1,030	1,003	958	844	803	1,186	
Month	54,777	46,893	47,988	43,140	42,284	44,580	31,930	31,093	28,740	26,164	24,090	36,766	458,445
Eastborough—													
Daily average	876	937	916	942	780	811	839	826	772	816	741	742	
Month	27,156	27,173	28,396	28,260	24,180	24,330	26,009	25,606	23,160	25,296	22,230	23,002	304,798
Goodrich—													
Daily average	356	331	336	1,216	316	311	294	245	262	275	352	341	
Month	11,036	9,599	10,416	36,480	9,796	9,330	9,114	7,595	7,860	8,525	10,560	10,571	140,882
Miscellaneous—													
Daily average	206	118	162	98	67	416	71	70	74	54	61	89	
Month	6,386	3,422	5,022	2,940	2,077	12,480	2,201	2,170	2,220	1,674	1,830	2,759	45,181
COWLEY COUNTY:													
Burden—													
Daily average	571	515	508	672	552	571	524	495	410	490	440	437	
Month	17,701	14,935	15,748	20,160	17,112	17,130	16,244	15,345	12,300	15,190	13,200	13,547	188,112
Grand Summit—													
Daily average	204	222	194	232	110	160	222	198	188	185	185	179	
Month	6,324	6,438	6,014	6,960	3,419	4,800	6,882	6,138	5,640	5,735	5,550	5,549	69,449
Eastman—													
Daily average	241	234	251	268	253	251	247	245	237	241	231	232	
Month	7,471	6,786	7,781	8,040	7,843	7,530	7,657	7,595	7,110	7,471	6,930	7,192	89,401
Carson—													
Daily average	231	249	243	240	245	242	235	239	247	227	215	211	
Month	7,161	7,221	7,533	7,200	7,595	7,260	7,285	7,409	7,410	7,037	6,450	6,541	86,102
Winfield—													
Daily average	511	492	499	472	474	476	442	459	445	446	453	446	
Month	15,841	14,268	15,469	14,160	14,694	14,280	13,702	14,229	13,350	13,826	13,590	13,826	171,235
State—													
Daily average	431	462	459	447	431	438	444	397	367	382	376	383	
Month	13,361	13,398	14,229	13,410	13,361	13,140	13,764	12,307	11,010	11,842	11,280	11,873	152,975
Rainbow Bend—													
Daily average	1,056	964	1,020	1,056	1,026	1,030	1,147	1,067	1,105	1,116	1,022	1,071	
Month	32,736	27,956	31,620	31,680	31,806	30,900	35,557	33,077	33,150	34,596	30,660	33,201	386,939
Weathered—													
Daily average	400	289	417	395	450	410	390	474	553	505	514	509	
Month	12,400	8,381	12,927	11,850	13,950	12,300	12,090	14,694	16,590	15,655	15,420	15,779	162,036
Miscellaneous—													
Daily average	1,144	1,274	1,247	1,506	1,518	1,512	1,295	1,432	1,305	1,372	1,366	1,355	
Month	35,464	36,946	38,657	45,180	47,058	45,360	40,145	44,392	39,150	42,532	40,980	42,005	497,869
COFFEY COUNTY:													
Daily average	56	58	55	53	74	69	56	45	59	115	177	128	
Month	1,736	1,682	1,705	1,590	2,294	2,070	1,736	1,395	1,770	3,565	5,310	3,968	28,321
LYON COUNTY:													
Daily average	368	347	365	393	388	383	501	385	366	353	353	347	
Month	11,408	10,063	11,315	11,790	12,028	11,490	15,531	11,935	10,980	10,943	10,590	10,757	138,830
TREGO COUNTY:													
Wakeeney—													
Daily average	76	297	323	250	122	302	207	152	229	258	212	208	
Month	2,356	8,613	10,013	7,500	3,782	9,060	6,417	4,712	6,870	7,998	6,360	6,448	80,129
Holcomb—													
Daily average	.....	.....	.....	.....	.....	.....	106	96	101	105	9	116	
Month	.....	.....	.....	.....	.....	.....	3,286	2,976	3,030	3,255	270	3,596	16,413
Miami, Franklin, Linn, Anderson, Bourbon, Neosho, Ness, Wilson, Labette, Montgomery, Elk and Chautauqua Counties—													
Daily average	6,455	5,858	7,182	7,914	7,616	7,380	7,499	7,074	7,332	7,192	7,213	7,244	
Month	200,105	169,882	222,642	237,420	236,096	221,400	232,469	219,294	219,960	222,952	216,390	224,564	2,623,174
Daily average	140,121	138,012	150,816	161,179	153,377	148,068	156,111	166,471	163,906	161,155	160,544	171,021	155,969
Total 1936	4,343,751	4,002,348	4,675,296	4,835,370	4,754,687	4,442,040	4,839,441	5,160,601	4,917,180	4,995,805	4,816,320	5,301,651	57,084,490
Total 1935	4,189,340	4,094,412	4,623,154	4,373,670	4,610,940	4,436,880	4,710,884	4,462,140	4,411,260	4,702,979	4,279,920	4,468,867	53,364,446
Total 1934	3,360,865	3,173,324	3,958,142	3,939,840	4,083,134	3,971,070	4,122,659	3,971,100	3,607,200	3,850,634	3,721,830	3,994,319	45,754,117
Total 1933	2,871,282	2,801,512	3,604,539	3,492,990	3,277,103	3,210,150	4,068,130	3,908,294	3,729,000	3,287,643	3,599,400	3,455,725	41,305,768
Total 1932	3,170,587	2,838,839	3,042,929	2,974,080	3,038,930	2,837,179	2,906,808	3,046,959	2,970,750	2,892,486	2,841,780	2,777,879	35,339,206



Reproduction of the micrograph above shows the interlocking of the flakes of the internal reinforcement used by Barrett. By laminating with the waterproofing agent, they give Barrett Pipe Line Enamels unusual toughness and resistance to soil stresses.

For pipe of large diameter, The Barrett Company will furnish equipment required to revolve pipe and spread enamel.

Unusual resistance to soil stresses

The unique flake-type filler employed in Barrett Pipe Line Enamels permits the use of greater quantities of high-melting-point coal-tar pitch base. The result is pipe coating with superior resistance to the destructive effects of soil action.

This feature, together with their high flowability and resistance to water absorption and line currents, makes Barrett Enamels an outstanding value for the protection of underground and under-water pipe line installations.

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Barrett PIPE LINE ENAMELS

FIELD SERVICE The Barrett Company maintains a Pipe Line Service Department to assist engineers in all coating problems, and also has available Field Service men whose assistance is offered where Barrett's protective coatings are used. Inquiries are invited.

and produced 737 bbls. in 24 hours. Siliceous lime production was discovered in the St. John area in October, when Stanolind Oil & Gas Co. and others deepened No. 1 Tudor-Morgan, SE NW section 23-24-13w, from Lansing lime. After deepening to Siliceous at 4,075-87 feet it made potential of 1,258 bbls. of oil naturally.

South of Silica

An important Barton County strike of the year was at Buchanan & Alexander No. 1 Langfeld, NE SW section 14-20-11w, which was completed in May as a Siliceous lime producer at 3,286-3,300 feet, total depth. It produced 1,320 bbls. after acidizing. It is south of the important Silica district. The East Albert gas area was opened in western Barton County in August at Schermerhorn Oil Co. No. 1 Hunter, NE cor. section 29-18-15w. It topped Conglomerate at 3,486 feet, was bottomed at 3,576 feet, plugged back to 3,518 feet and produced 39,000,000 feet of gas. Rose-Spring Drilling Co. No. 1 Rick, SW cor. section 1-19-11w, completed in August, had Siliceous lime at 3,321 feet, pay at 3,353 feet, total depth 3,355 feet, and produced 937 bbls. after acidizing.

In Rooks County, F. A. Gillespie & Sons completed No. 1 Lowe, NE NW section 12-6-18w, in February, to open the most northerly producing area in the state. It produced 306 bbls. of oil after acid treatment. Top of Oswald lime was 3,036 feet; pay, 3,128 feet; total depth, 3,164 feet; plugged back to 3,150 feet. A new Rooks County pool was opened in November at L. C. D. Drilling Co. and others No. 1 Wasthusin, C NE SE section 11-9-17w, 12 miles north of the Bemis pool in Ellis County. It had Oswald lime at 3,141 feet; total depth, 3,243 feet; acidized and made potential of 504 bbls. of oil, with 252 bbls. of water.

Elk County Revival

The revival of work in older areas of southeastern Kansas was given new incentive in December when Diller Oil & Gas Co. No. 1 Key B, SW SW NW section 25-31-10, Elk County wildcat, southeast of the Webb pool, was estimated as a 1,000-bbl. well from top of Siliceous lime at 2,255 feet, total depth. A wildcat also was completed in Chautauqua County, to the south. It was Union Oil & Gas Co. No. 8-A Wilson, SE SW NE section 14-33-12, northeast of Sedan. It was completed at 1,819 feet in top of Siliceous lime and flowed 65 bbls. an hour. These wells are in an old shallow pool district.

Some other wildcat completions, summarized briefly, were:

Skelly Oil Co. and others No. 1 Community Gilchrist, C SE section 7-28-11w, eastern Pratt County; January completion; Viola lime, 4,227 feet; total depth, 4,435 feet in Siliceous lime; plugged back to 4,244 feet; produced 14,000,000 feet of gas.

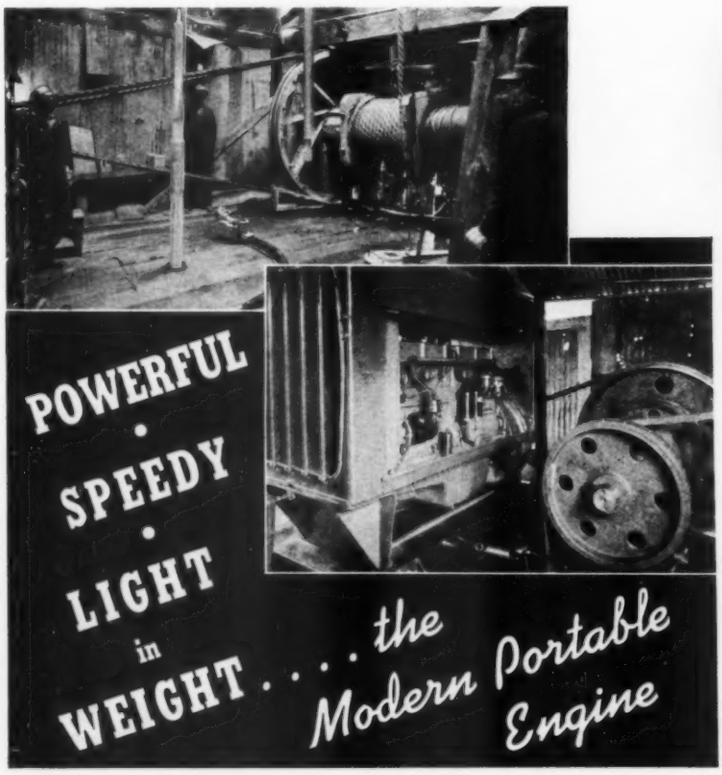
Helmerich & Payne No. 1 Elliott, C SW section 30-29-33w, and same operators' No. 1 Larson, C SE section 28-28-33w, were gas discoveries in Haskell County. This is to the northeast of the Hugoton gas field. Several extensions and discoveries in this general gas area were made during the year.

Various Discoveries

National Refining Co. opened the McCullough pool in Butler County at No. 1 McCullough, NE NE SW section 1-28-6, in February. It had Wilcox sand at 3,169-75 feet, total depth; potential, 107 bbls. Mohawk Oil Co. No. 1-A Edgar, NE NE SW section 2-28-8, Greenwood County, had Mississippi lime at 2,540-48 feet, total depth, and pumped 35 bbls. in 24 hours, completed in March. Chris Sheedy and others opened a Woodson County pool in March at No. 2 Warner, SW cor. section 21-25-14w; sand, 1,426-1,500 feet, total depth; flowed 100 bbls. In April, Roth & Faurot opened a Cowley County pool at No. 1 Sherwood, NE NW SW section 11-31-4w. It made potential of 215 bbls. Another Cowley County discovery was Shawver & Wilt No. 1 Baruth, SW NW NE section 8-34-3; total depth, 3,305 feet; potential, 125 bbls.; completed in April. Four gas discovery wells also were completed in Cowley County.

Completions in Trego County included Central Commercial Oil Co. No. 1 Wagg, NW NW NE section 17-13-21w, wildcat in the Riga area. It

(Continued on Page 98)



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Annual Review

DISCOVERIES IN ROCKY MOUNTAINS INCLUDE MAJOR OIL POOLS

By T. R. INGRAM

Important pools were opened in the Rocky Mountain area in 1936 and older fields extended. A major pool was discovered in northwestern Colorado, and a pool in the extreme southern part of the state, a 1935 discovery, was developed enough to show that it will yield much oil when given a market outlet. Wyoming had a 53 per cent increase in drilling and the Lance Creek and Wertz dome discoveries were of prime importance. The most important discoveries in Montana were in Fallon and Yellowstone counties, at opposite ends of the state. Southeastern New Mexico extensions to fields were important factors of the year's work.

NEW MEXICO

Drilling operations in New Mexico centered as in former years in the southeastern part of the state, particularly in Lea County. Offset drilling in the proven areas continued progressively on the basis of one well to every 40 acres and the pools spread out in all directions. The extent of the year's drilling program may be summarized in the following figures for Lea County. At the beginning of 1936 there were five hundred forty-seven 40-acre units on production in the Hobbs, Lea, Monument, Eunice, Cooper and Jal pools. At the close of 1936 there were 1,051 producing units, a gain of 504 units. On an acreage basis there were 20,880 acres on production at the beginning of the year and 62,040 acres at the end, a gain of 41,160 acres.

Hobbs, the first big discovery in New Mexico and one of the big pools of the country, yielded first place in 1936 in proven acreage and production to Eunice and Monument. Neither of the last named have, however, drilled in such big producers as marked the development of the Hobbs field. At the close of 1936 Hobbs had 244 units comprising 9,760 acres on production. Eunice, which now stands first, had 366 units, comprising 14,640 acres, on production. Monument, which now ranks second, wound up the year with 263 units of 10,520 acres on production. Likewise, Hobbs occupied third place at the close of 1936 in daily allowable production, their relative position being Eunice, 31,829 bbls.; Monument, 22,000 bbls., and Hobbs, 21,897 bbls.

Monument and Eunice One Pool?

The outstanding feature of this extensive drilling campaign was the practical assurance that Monument and Eunice comprise one big pool. Monument operations steadily carried the proven area southward, while Eunice drilling extended its territory to the north until the two are less than 2 miles apart. The Phillips Petroleum Co. had a completion in the NE SW section 18-20-37, which is about 2 miles north of the nearest producer in the Eunice field. More than a mile to the east and a little south six producers were completed in the corners of sections 16, 17, 20 and 21-20s-37. If these fields come together, as everyone expects, it will make a pool at least 15 miles long and 4 to 5 miles wide as they now stand. The limits of the two pools have not yet been definitely defined.

In the district 10 miles southeast of the Eunice pool, in what is now designated as the Penrose area, but carried in drilling reports under the Eunice area, 14 wells were completed. The most northeasterly of these was the Samedan Oil Co. No. 1 Parks, SW cor. section 14-22s-37e, which plugged back from 3,800 feet to 3,610 feet and flowed 69 bbls. in 16 hours from pay topped at 3,510 feet. The most southwesternly well, with the exception of a west offset, is Skelly Oil Co. No. 2 Baker, C NW NW section 27-22s-37e, which was completed in lime at 3,550-96 feet for 376 bbls. in 24 hours after being shot with 220 quarts. Drilling so far in the district proves up territory 1½ miles long in a northeast-southwest direction and a little more than a mile in a north-south direction. To the north 5 miles, in what is now known as the Hardy area, there were six wells at the end of the year covering a little more than a square mile of territory, with another isolated producer 2 miles to the southwest. The two most southerly wells of this group are in the NE cor. section 32, and the NW cor. section 33-21s-37. Last named is the Magnolia Petroleum Co. No. 2 Carson, C NW NW section 33-21-37, which made 228 bbls. in 24 hours at 3,786 feet after being shot. The most easterly well, in C NE SE section 28, made 120 bbls. initial. The most westerly is in the C SE NE section 30. The nearest is about 3 miles east of the nearest producer in the Eunice pool. Whether Eunice will extend out that far is not certain, but the Gulf Oil Corp. has an old gas well, its No. 1 Mattern, midway between.

Semiwildcats

In the Jal area drilling of semiwildcats extended over considerable territory. Most of these had to fight water before getting completions. Fourteen wells were completed in the area during the year as producers. However, at the end of 1936 of the 64 units on production 37 were classed as marginal wells and allowed to produce at capacity, this being less than the acreage allowable for the field.

Only 12 units were added to the Cooper area during the year and of the 100 units on production 20 were marginal wells. The field is having considerable water trouble. Five miles to the northeast of Cooper and in a north-south line with the Hardy and Penrose districts, in what has been designated as the Skelly area, 12 wells were drilled during the year. These extend from a gasser in the C NW NE section 17-23n-37e, to an oil well in the C NW SE section 3-23s-37e. Two miles northwest of the gasser there were two dry holes in NW SW section 6 and SW NW section 5-23s-37. The most easterly of the group was completed in December, 1936, in the Skelly Oil Co. No. 1 Sims, C NE NE section 10-23s-37, which made 84 bbls. in 12 hours with 400,000 feet of gas at 3,585-3,653 feet after being shot.

All Lea County pools are under proration and the allowable outlet was gradually increased during the year as markets developed for the gain in production. At the beginning

New Mexico

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
HOGBACK:													
Daily average	198	211	207	201	188	203	192	308	291	281	323	157	
Month	6,148	6,126	6,421	6,042	5,816	6,100	5,954	9,555	8,717	8,720	9,683	4,867	84,149
RATTLESNAKE:													
Daily average	632	562	591	571	679	704	708	1,008	786	811	878	592	
Month	19,583	16,296	18,316	17,136	21,057	21,130	21,933	31,241	23,572	25,155	26,343	18,352	260,114
TABLE MESA:													
Daily average	73	77	85	136	13	91	115	76	90	97	103	82	
Month	2,262	2,247	2,635	4,070	413	2,730	3,577	2,351	2,708	3,011	3,079	2,542	31,625
AZTEC-BLOOMFIELD (Est.):													
Daily average	3	8	8	8	7	8	7	.....	.....	.....	.....	.....	
Month	270	229	245	250	225	250	225	.....	.....	.....	.....	.....	1,694
ARTESIA AREA:													
Daily average	2,293	2,449	2,573	2,786	3,186	3,640	2,966	2,807	3,157	3,098	3,292	3,132	
Month	71,083	71,020	79,749	83,585	98,771	109,188	91,954	87,021	94,701	96,029	98,745	97,092	1,078,938
HOBBS:													
Daily average	26,351	26,512	27,527	26,513	26,594	24,161	22,794	22,665	22,589	23,831	23,009	23,960	
Month	816,868	768,855	853,348	795,392	824,406	724,840	706,602	702,627	677,672	738,708	690,265	742,760	9,043,343
JAL:													
Daily average	3,392	3,274	3,111	3,028	3,110	3,101	3,080	3,160	3,196	3,369	3,378	3,376	
Month	105,160	94,932	96,429	90,835	96,419	93,040	95,472	97,969	95,893	104,437	101,351	104,656	1,176,593
EUNICE:													
Daily average	14,850	16,210	17,933	18,821	20,803	21,030	21,643	23,809	24,147	28,569	30,029	28,818	
Month	460,352	470,079	555,930	564,624	644,903	630,890	670,943	738,088	724,404	885,628	900,878	893,358	8,140,077
LEA:													
Daily average	947	894	999	992	1,019	1,025	1,023	1,024	1,016	740	1,012	992	
Month	29,351	25,924	30,982	29,766	31,583	30,742	31,707	31,757	30,479	22,928	30,354	30,752	356,325
COOPER:													
Daily average	8,341	8,281	8,148	8,657	8,663	7,497	7,331	7,381	7,289	8,064	7,973	7,416	
Month	258,583	240,140	252,578	259,719	268,543	224,901	227,275	228,801	218,673	249,988	239,187	229,896	2,898,284
MONUMENT:													
Daily average	3,077	4,923	6,478	6,793	10,042	11,332	12,263	12,910	12,491	12,124	12,311	12,323	
Month	95,389	142,760	200,814	203,779	311,305	339,965	380,155	400,222	374,739	375,843	369,333	382,013	3,576,317
Daily average	60,163	63,400	67,660	68,507	74,305	72,793	72,122	75,149	75,052	80,982	82,307	80,848	72,807
Total 1936	1,865,049	1,838,608	2,097,447	2,055,198	2,303,441	2,183,776	2,235,797	2,329,632	2,251,558	2,510,447	2,469,218	2,506,288	26,647,459
Total 1935	1,627,833	1,379,563	1,599,331	1,535,989	1,626,572	1,660,519	1,802,167	1,797,597	1,734,400	1,806,363	1,773,725	1,810,262	20,154,321
Total 1934	1,285,867	1,129,208	1,277,794	1,370,695	1,407,997	1,380,044	1,452,055	1,515,828	1,428,202	1,416,231	1,369,447	1,405,510	16,438,878
Total 1933	995,813	1,020,824	1,148,674	1,065,030	1,092,719	1,063,290	1,155,194	1,189,589	1,227,240	1,299,334	1,253,640	1,289,631	13,801,278
Total 1932	1,152,766	1,056,702	1,126,354	1,096,320	1,109,273	1,069,020	1,093,835	971,075	934,800	975,043	925,410	834,086	12,344,684

of the year the allowable was 58,500 bbls. daily. At the beginning of 1937 it had increased to 88,590 bbls. daily. During the year proration under the state's commission was extended to the Eddy County fields. The total state allowable increased from 62,000 bbls. daily on January 1 to 92,800 bbls. beginning with 1937.

Outside of Lea County wildcatting proceeded on normal lines but resulted in no important discoveries.

NEW MEXICO

Summary of Wells Completed in 1936

	Comp.	Prod.	Dry	Gas
Bernalillo	1	0	1	0
McKinley	13	88	9	0
San Juan	21	624	5	4
Lea	485	545,131	21	11
Eddy	27	2,985	7	2
Torrance	1	0	1	0
Chaves	2	7	1	0
Quay	1	0	1	0
Valencia	1	0	1	0
Total 1936	552	548,835	47	17

Completions by Months

	Comp.	Prod.	Dry	Gas
January	32	31,494	1	3
February	32	48,587	6	1
March	42	53,678	4	2
April	48	73,679	1	1
May	49	48,969	7	1
June	62	67,905	6	2
July	63	59,086	6	0
August	46	31,525	5	0
September	51	44,884	5	1
October	47	37,897	1	4
November	44	30,990	2	0
December	36	20,141	3	2
Total 1936	552	548,835	47	17
Total 1935	337	610,688	71	4
Difference	215	61,853	24	13

COLORADO

One new oil pool of major proportions was discovered on the Powder Wash structure in northern Moffat County, Colorado, and the Gramps (Price) pool in Archuleta County, in the southern part of the state, which was a discovery in 1935, was extended in area and proven for production in deeper horizons. The South Park Oil Co. No. 1 State, on the Hartsel structure in Park County, in the central part of the state, which looked like a discovery early in the year, was still drilling at the close of 1936.

The Powder Wash discovery is the Mountain Fuel Supply Co. No. 1 Carl Allen, NE SW SE section 32-12n-97w, 18 miles east of the Hiawatha gas field and within a few miles of the Wyoming line in northern Moffat County. Its importance lies not only in the opening of a new light oil field, but marks the first major discovery in rock of Tertiary age in the entire Rocky Mountain area. It was completed in November in the Wasatch formation at a total depth of 5,032 feet with the 8⅝-inch cemented at 5,014 feet. The elevation is 6,678 feet. It flowed an average of 47½ bbls. an hour through the 2½-inch tubing with a back pressure of 1,400 pounds at the casinghead on an eight-hour test. After the test, the well was shut in. The oil has a gravity of 39.9 degrees on the A.P.I. scale and congeals at around 50 degrees.

At the end of 1936 the company was starting two more wells. The structure was mapped by William T. Nightingale, geologist for the Mountain Fuel Supply Co. The discovery paves the way for prospecting on numerous Tertiary structures in northwestern Colorado and southwestern Wyoming which have been generally passed up in former wildcatting campaigns.

Southern Colorado Development

The Gramps structure in Archuleta County, a few miles north of the New Mexico line, came into promient attention late in 1935 when the William E. Hughes estate completed No. 2 Gramps, approximately in the SW SE SE section 24-33n-2e, on unsurveyed land, for an estimated production of 40 to 50 bbls. a day in the first Dakota (Muddy) sand at 1,080-1,120 feet. Subsequently it was deepened to the second sand at 1,172 feet, at which depth it was estimated at 500 bbls. a day. In 1936 the operator drilled 10 additional wells so located as to outline the probable productive area. The location and depth of these wells was not released by the operator, but they are generally to the north of the discovery and probably proved up 400 to 500 acres. In September one of the wells, No. 10 Gramps, was drilled to the top of the Morrison formation. It penetrated eight sands of the Dakota series, all of which were productive of oil and none of which carried water. The series comprised 174 feet of saturated sand. The well was estimated on the basis of swabbing tests at 1,487 bbls. per day, of which 778 bbls. were from the two upper sands and the remainder from the lower six sands. In November a second well was drilled to the top of the Morrison in No. 13 Gramps and sand conditions were approximately the same as in No. 10 Gramps. This well was gauged and made 1,920 bbls. in 24 hours.

The estate owns approximately 65,600 acres in fee. Before the end of the year all wells were equipped for pumping, storage was erected and tests made, but no figures were released. Operations then were suspended for the winter except for the construction of a 14-mile pipe line from the field to Chama, N. Mex., which was due for completion before the end of the year. The operator has made no announcement concerning plans for marketing the oil.

Several important wildcats were drilled during the year. The Standard Oil Co. of California tested the Round Butte structure in Larimer County to the Ingleside of Pennsylvanian age at 2,969 feet in its No. 1 State, SE SW NE section 6-11n-68w. The Trojan Oil & Gas Co. No. 1 Lotus Oil, NW NE NE section 15-23s-46w, near Lamar, in Prowers County, tested the Manitou formation at 5,890 feet. It had a show of oil in the Kansas City lime at 3,602-24 feet; another in the Fort Scott lime at 4,019-33 feet and in streaks of the Mississippian at 5,079-5,197 feet.

C. E. Lambert No. 1 Union Pacific, C section 13-8s-57w, Limon district, Elbert County, tested all horizons down to the Lakota at 6,004 feet. The Indian Territory Illuminating Oil Co. No. 1 Strangways, C NW SW section 21-2s-43w, Beecher Island district, Yuma County, was abandoned in granite at 5,595 feet, and same company's No. 1 Vorce, C NE NE section 28-1s-49w, Hyde district, Washington County, was abandoned in granite at 7,005 feet. The Continental Oil Co. No. 1 State Bank of Trenton, C SW NE section 21-8n-59w, Buckingham district, Weld County, tested all sands down to the Lakota at 6,965 feet and was abandoned. Same company's No. 2 Briggs, C NE SW section 13-6n-61, Greasewood district, a north offset to a producer, tested all horizons to the top of the Morrison at 7,042 feet and was abandoned.

COLORADO

Summary of Wells Completed in 1936

County—	Comp.	Prod.	Dry	Gas
Archuleta	7	7,077	2	0
Baca	1	0	1	0
Boulder	3	5	1	0
Costilla	1	0	1	0
Elbert	1	0	1	0
Huerfano	1	0	1	0
Jackson	1	35	0	0
Larimer	1	0	1	0
Moffat	4	1,788	0	1
Montezuma	1	0	1	0
Prowers	1	0	1	0
Washington	2	0	2	0
Weld	4	0	4	0
Yuma	1	0	1	0
Total 1936	29	8,905	17	1

Completions by Months

	Comp.	Prod.	Dry	Gas
January	3	35	2	0
February	2	0	2	0
March	4	2,002	2	0
April	2	0	2	0
May	2	1,626	0	0
June	3	1,000	2	0
July	0	0	0	0
August	3	110	2	0
September	2	709	1	0
October	2	3	0	1
November	3	1,500	2	0
December	3	1,920	2	0
Total 1936	29	8,905	17	1
Total 1935	18	9,961	6	1
Difference	11	1,056	11	0

MONTANA

Drilling operations in Montana in 1936 showed a gain of approximately 33 per cent in the number of completions as compared with 1935. Glacier County, in which is located the Cut Bank field, and Toole County, in which is the Kevin-Sunburst field, accounted for more than 80 per cent of all the wells drilled in the state. These operations were in and adjacent to the producing pools, Glacier County having 126 completions and Toole County 81 out of the total of 247 for the state.

Wildcatting was carried on in about a dozen counties and resulted in two oil discoveries. One of these was on the Baker-Glendive anticline on the extreme eastern side of the state and the other in the Mosser district in Yellowstone County near the southern boundary. There were approximately 4,575 acres added to the proven territory in the Cut Bank field, which was largely offset by dry holes on the north in territory which was expected to be productive. Some additional territory was proven in the Kevin-Sunburst field, although most of it is within the original limits estimated to be productive. There was a small extension of the Whitlash gas area in Liberty County.

Fallon County Discovery

The most important oil discovery was in the Montana-Dakota Utilities Co. No. 1 Unit 1, NE NE NW section 17-4n-62e, on the Cedar Creek (Baker-Glendive) anticline in Fallon County, 2 miles west of the state's eastern boundary. The structure is an anticlinal fold starting in South Dakota, crossing into Montana in Carter County and trending to the northwest for approximately 100 miles where it disappears under the Fort Union beds 15 miles northwest of Glendive. Several gas pools have

Colorado

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
CRAIG (Moffat):													
Daily average	412	336	336	389	472	435	435	399	418	426	434	433	
Month	12,772	9,744	10,416	11,670	14,632	13,050	13,485	12,369	12,540	13,206	13,020	13,423	150,327
FORT COLLINS:													
Daily average	73	72	77	54	57	56	75	54	63	49	70	67	
Month	2,263	2,088	2,387	1,620	1,767	1,680	2,325	1,674	1,890	1,519	2,100	2,077	23,390
FLORENCE:													
Daily average	180	205	191	222	187	145	189	180	149	188	181	211	
Month	5,580	5,945	5,921	6,660	5,797	4,350	5,859	5,580	4,470	5,828	5,430	6,541	67,561
ILES:													
Daily average	2,106	2,645	3,078	3,893	3,511	3,530	3,242	3,665	3,670	3,671	2,698	2,472	
Month	65,286	76,705	95,418	116,790	108,841	105,900	100,502	113,615	110,100	113,801	80,940	76,632	1,164,530
ORCHARD:													
Daily average	58	52	34	71	36	71	73	55	47	44	34	46	
Month	1,798	1,508	1,054	2,130	1,116	2,130	2,263	1,705	1,410	1,364	1,020	1,426	18,924
RANGELY:													
Daily average	81	76	81	67	81	77	65	76	81	87	82	89	
Month	2,511	2,204	2,511	2,010	2,511	2,310	2,015	2,356	2,430	2,697	2,460	2,759	28,774
TOW CREEK:													
Daily average	150	156	226	168	192	184	171	166	162	175	173	162	
Month	4,650	4,524	7,006	5,040	5,952	5,520	5,301	5,146	4,860	5,425	5,190	5,022	63,636
WELLINGTON:													
Daily average	257	286	219	298	302	294	258	247	257	239	236	232	
Month	7,967	8,294	6,789	8,940	9,362	8,820	7,998	7,657	7,710	7,409	7,080	7,192	95,218
Daily average	3,317	3,828	4,242	5,162	4,838	4,793	4,508	4,842	4,847	4,819	3,908	3,712	4,490
Total 1936	102,827	111,012	131,502	154,860	149,978	143,760	139,748	150,102	145,410	151,249	117,240	115,072	1,612,710
Total 1935	109,690	111,743	148,149	146,635	150,325	133,302	129,285	130,789	130,040	129,747	118,031	117,806	1,535,542
Total 1934	88,065	77,836	80,388	75,132	94,308	84,689	106,700	113,937	107,104	97,154	102,058	103,004	1,130,375
Total 1933	83,421	69,356	81,437	66,270	80,848	73,170	78,515	75,040	70,590	76,415	74,910	84,909	914,031
Total 1932	107,384	104,052	111,817	101,580	100,440	89,520	90,179	75,981	86,580	83,793	82,209	80,538	1,114,064

been developed in local doming along the fold on which more than 200 wells have been drilled to shallow horizons at 800 to 1,400 feet. Three-fourths of these wells were productive of gas and the product is being marketed.

The discovery well spudded early in 1936 for a deep test on a location spotted by John H. Wilson's Colorado Geophysical Corp. following a seismograph survey. It showed little of a promising nature until April when it cored oil saturation in the Madison (Mississippian) lime at 6,647-97 feet. The first test made at night showed for 6,000 to 7,000 bbls. of fluid per day. However, the fluid held about 80 per cent water in suspension. After cleaning up and acidizing it showed for an estimated capacity of 125 to 225 bbls. per day of pipe line oil of 30 gravity A.P.I. scale. However, water trouble persisted and the horizon was cemented off and drilling resumed. It was continued to a total depth of 8,186 feet where it was completed supposedly in the Devonian, and although no official announcement was made as to the results, it is believed to have been a 200- to 300-bbl. well. The 4¾-inch was cemented at 8,124 feet. The elevation at the surface is 2,991 feet. At the end of the year a second test 3,000 feet north of the discovery was reaching a critical stage and a third, 25 miles to the north, near Baker, was drilling. The discovery had the Niobrara at 2,075-2,252 feet; the Dakota series at 3,-088-3,752 feet; the Sundance series at 4,025-4,616 feet; the Spearfish (Triassic) at 4,616-5,463 feet; and the Minnelusa (Pennsylvanian) at 5,-631-6,747 feet.

The discovery on the Mosser dome in Yellowstone County resulted from a wildcatting campaign on one of a series of small domes by R. C. Tarrant, one of the principal operators in the Cut Bank field. The first well was started in August in his No. 1 Mosser, CWL SW NE section 26-3s-24e. It had the Greybull (Lower Cretaceous) at 995-1,060 feet with gas at the top and 460 feet of oil at 1,008 feet. It swabbed around 100 bbls. of oil, but this was drowned out with water upon deepening. It then went on down to the Ellis-Madison at 2,530 feet and at 2,560 feet had 15,000 bbls. of water. Total depth was 2,571 feet. The next well, his No. 1 Metzger, C SW NW section 8-2s-25e, on a separate dome, had the Dakota at 961-99 feet with a big show of gas. This was bradenheaded and the hole carried to the Lakota at 1,010-60 feet where it had water. It was plugged back to the Dakota at 961-1,008 feet and completed for 10,000,000 feet of gas. The third well, his No. 1 Sayre, was drilled near No. 1 in the NW NW SE section 26-3s-24e, and pumped 100 bbls. in 18 hours in the Dakota at 1,010-36 feet. The discovery is located 24 miles northeast of the Elk Basin field and 18 miles southwest of Billings.

The principal extension of the Cut Bank field was to the south and southwest, where 2,000 acres of Indian land had been thrown open to drilling. The outpost wells at the end of the year in that direction were H. R. Patterson No. 1 Chatterton, SE SE NE section 22-32n-6w, a wildcat, which was located 3 miles southwest of production, and R. C. Tarrant No. 3 Reickhoff, C NE NE section 36-32n-6w, 4½ miles south of production and 2½ miles southeast of No. 1 Chatterton. These wells proved up about 4,575 acres. No. 1 Chatterton was completed at 3,324 feet and swabbed 98 bbls. first 24 hours after shooting with 80 quarts. It averaged 50 bbls. on a 10-day pumping test. The elevation is 3,776 feet. The Sunburst at 3,220-48 feet showed a small quantity of water. The Cut Bank was at 3,283-3,318 feet. No. 3 Reickhoff pumped 30 bbls. per day at a total depth of 3,072 feet. The Sunburst at 2,950-60 feet was dry and the Cut Bank sand was at 2,985-3,063 feet. Elevation 3,716 feet.

The above extensions, taken into consideration with wildcatting in the Valier district, southeast of the Cut Bank field, in Pondera County, in which the tests failed to find the old shore line from which production in Cut Bank comes, has led to the belief in some quarters that the trend of the production is farther to the west than to the southeast. The Texas Co. drilled several widely scattered wildcat failures in that area in 1935 and 1936 and the Montana Power Gas Co. put down a test with the same results. Wildcats around the pool which had a bearing in establishing limits, included the following: Cobb & Pardee No. 1 Stufft, C SE NW section 25-36n-6w, 1¾ miles north of production, dry in the Cut Bank at 3,006-50 feet, plugged back to the Moulton sand at 2,930-60 feet and completed for 9,073,000 feet of gas. G. A. Bodmar, Agent, No. 1 Government, SW SW SE section 14-36n-6w, 2 miles to the north of nearest oil production and 1¾ miles northwest of nearest gas, was plugged and abandoned at 3,170 feet. Stanley Gray No. 1 Allotted 113, NW SE NW section 22-34n-7w, west side of the field, plugged and abandoned at 3,790 feet. Par Oil Co. No. 1 Reynolds, SW NE NW section 31-33n-4w, east side of the field, abandoned at 2,885 feet.

The Santa Rita Oil & Gas Co. No. 1 Lander, C N half SE section 16-35n-6w, on the west side, was the sensation of the year in Cut Bank. It was a failure in the Cut Bank sand, but went back to a show in the Sunburst, which normally is not productive in that field. It responded by flowing 480 bbls. per day and increasing up to 2,000 bbls. By the end of June it had produced 180,000 bbls. and was an important factor in the marketing situation in the field and was partially responsible for the company organizing the Northwest Refining Co. which began the construction of a 2,500-bbl. refinery at Cut Bank.

The Whitlash gas field in Liberty County was extended to the northwest three-fourths of a mile in the Western Natural Gas Co.'s No. 1 State, SE SE SW section 16-37n-4e. It is the largest well in the field and made 13,775,000 feet first 24 hours at 2,045 feet.

MONTANA

Summary of Wells Completed in 1936

County—	Comp.	Prod.	Dry	Gas
Big Horn	7	0	1	6
Carbon	2	0	2	0
Daniels	1	0	1	0
Fallon	3	500	0	1
Fergus	2	0	1	1
Glacier	126	12,320	14	10
Liberty	2	0	0	2
Petroleum	5	16	3	0
Pondera	7	77	5	0
Phillips	7	0	0	7
Teton	2	0	2	0
Toole	81	2,674	17	6
Yellowstone	2	0	1	1
Total, 1936	247	15,587	47	34

Completions by Months

	Comp.	Prod.	Dry	Gas
January	12	2,264	1	2
February	4	371	0	2
March	7	369	2	0
April	21	1,274	7	1
May	24	1,481	2	2
June	26	1,599	4	1
July	28	1,943	4	3
August	28	1,689	8	4
September	27	1,694	7	1
October	25	1,393	7	4
November	25	496	3	11
December	20	1,014	2	3
Total, 1936	247	15,587	47	34
Total, 1935	186	12,928	38	17
Difference	61	2,659	9	17

WYOMING

Drilling operations in Wyoming in 1936 showed a gain of 53 per cent in the number of wells completed as compared with 1935 and an increase of 60 per cent in new production. One major oil pool was discovered, this being a 2,000-bbl. well in the Tensleep horizon on the Wertz dome in Carbon County, in the Sinclair-Wyoming Oil Co. No. 10 Wertz. This same company made another oil discovery in the Embar on the Muskrat dome in Fremont County, but the well had not been completed at the end of the year and its importance has not yet been appraised. One oil discovery in a deeper horizon was made in the Lance Creek field in the Ohio Oil Co. No. 5 Converse Sheep and extensions of productive areas in proven horizons were made in Lance Creek, Byron, Garland, Quealy, Big Medicine Bow, Hidden dome and Badger Basin fields. The gas areas in two producing fields were extended at South Baxter Basin and Allen Lake.

The Wertz dome discovery was made late in the year in the Sinclair-Wyoming Oil Co. No. 10 Government, SW SE NW section 7-26n-89w, in the northwest corner of Carbon County, just east of the Lost Soldier field in Sweetwater County and 30 miles northwest of the town of Parco where the Consolidated Oil Corp., of which Sinclair-Wyoming is a subsidiary, has a refinery. The Wertz dome produces gas in the Frontier, Dakota and Sundance sands. No. 10 Government spudded July 10 to go to the Tensleep of Pennsylvanian age. It found the top of the Tensleep at 5,869 feet and was drilled to 5,883 feet. The 7-inch was cemented at 5,863 feet. It was tested for six hours, making a mamixmum of 120 bbls. natural in one hour and 75 bbls. the last hour. It is estimated at 2,000 bbls. a day, but will be drilled a few feet deeper. The oil is of paraffin base, carries approximately 1 per cent sulfur, and tests 35 gravity on the A.P.I. scale. The oil was accompanied by 5,000,000 feet of gas a day. The elevation is 6,-899 feet.

The same company drilled a Tensleep test in the Lost Soldier field to the west of the Wertz dome several years ago and brought in a 2,-500-bbl. producer in that horizon. The oil in the two discoveries is approximately the same. The Sinclair-

Montana

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
BORDER:													
Daily average	124	42	223	224	226	221	70	171	156	154	158	154	
Month	3,844	1,218	6,913	6,720	7,006	6,630	2,170	5,301	4,680	4,774	4,740	4,774	58,770
CAT CREEK:													
Daily average	714	611	630	747	751	755	746	729	697	705	664	703	
Month	22,134	17,719	19,530	22,410	23,281	22,650	23,126	22,599	20,910	21,855	19,920	21,793	257,927
CUT BANK:													
Daily average	6,238	6,059	7,735	8,933	9,451	9,105	9,124	7,957	11,263	10,289	10,217	11,212	
Month	193,378	175,711	239,785	267,990	292,981	273,150	282,844	246,667	337,890	318,959	306,510	347,572	3,283,437
DRY CREEK:													
Daily average	.....	95	1,523	580	1,507	1,320	456	284	402	297	151	162	
Month	.....	2,755	47,213	17,400	46,717	39,600	14,136	8,804	12,060	9,207	4,530	5,022	207,444
KEVIN-SUNBURST:													
Daily average	3,672	2,435	4,308	4,495	4,189	4,531	4,359	4,322	4,725	3,937	4,267	4,711	
Month	113,832	70,615	133,548	134,850	129,859	135,930	135,129	133,982	141,750	122,047	128,010	146,041	1,525,593
LAKE BASIN:													
Daily average	48	47	52	41	41	42	46	42	41	42	43	41	
Month	1,488	1,363	1,612	1,230	1,271	1,260	1,426	1,302	1,230	1,302	1,290	1,271	16,045
PONDERA:													
Daily average	1,112	890	974	1,135	998	1,248	1,171	1,369	1,603	1,237	1,242	1,518	
Month	34,472	25,810	30,194	34,050	30,938	37,440	36,301	42,439	48,090	38,347	37,260	47,058	442,399
SOAP CREEK:													
Daily average	.....	.....	116	115	.....	.....	.....	.....	.....	.....	.....	.....	
Month	.....	.....	3,596	3,450	.....	.....	.....	.....	.....	.....	.....	.....	7,046
Daily average	11,908	10,179	15,561	16,270	17,163	17,272	15,972	14,874	18,887	16,661	16,742	18,501	15,843
Total 1936	369,148	295,191	482,391	488,100	532,053	516,660	495,132	461,094	566,610	516,491	502,260	573,531	5,798,661
Total 1935	348,101	302,697	321,665	323,965	325,205	312,071	403,140	415,226	398,069	410,648	409,182	397,259	4,367,228
Total 1934	223,641	196,789	220,434	235,504	275,544	247,687	329,577	353,263	321,510	367,863	367,837	369,366	3,509,015
Total 1933	183,086	150,864	172,608	179,310	186,031	203,340	220,052	219,518	206,760	213,931	216,840	205,716	2,358,056
Total 1932	173,569	166,373	189,224	222,830	233,647	210,060	218,364	198,865	192,930	188,232	154,530	170,531	2,320,155

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FIFTEEN PLANTS TO SERVE YOU

Wyoming company controls practically all the probable productive area on the two domes and the refinery is being reconditioned with sulfur resisting equipment preliminary to putting both wells on production next summer. The quality of the oil, which is much higher in gravity than the Tensleep production in the Big Horn Basin, makes the discovery of much greater importance. The discovery makes it practically certain that Quealy, Big Medicine Bow and other fields producing in younger horizons will be tested to the Tensleep. The Ohio Oil Co. is now making such a test at Rock Creek.

Lance Creek Extended

Twenty-five wells were drilled to completion in the basal Sundance in the Lance Creek field in 1936, of which the Ohio Oil Co. and the Continental Oil Co. put down 10 each, the Argo Oil Co. 4, and the MacKinnie Oil & Drilling Co. 1. These added approximately 930 acres to the proven area, bringing the pool at the end of the year up to about 2,100 proven acres. One of the largest completions was the Continental No. 4-A Schuricht, C NE SE section 6-35-65, for 5,233 bbls. in 24 hours with 3,430,000 feet of gas. One wildcat located a mile to the south of the nearest producer was plugged and abandoned. This was the Adams Louisiana-Bay-Elwell No. 1 Spaugh, C NW NE section 18-35-65, which was abandoned at 4,615 feet after testing the basal Sundance. Its elevation is 4,521 feet. It was far down structure. The field is under proration and the potential at the end of the year was 70,000 bbls. daily.

Big Medicine Bow

Big Medicine Bow, in Carbon County, in which the Ohio Oil Co. and the California Co. brought in the discovery well in 1935 for 6,360 bbls. of 63 gravity oil and 81,000,000 feet of gas, had four completions in 1936 by the same companies. These proved up about 930 acres for production in the Sundance, or a total of a little more than 1,200 acres. The most northerly of these producers was No. 3 Union Pacific-Johnson, C NE SE section 23-21n-79w, which had water in the second Sundance at 5,628-5,703 feet and was plugged back and completed in the first Sundance at 5,517-57 feet for 90 bbls. an hour with 6,000,000 feet of gas. The most southerly was No. 2 State, C NW NW section 36-21-79, which drilled down to the Jelm sand in the top of the red beds at a total depth of 5,910 feet, and had water in sands below the first Sundance. It plugged back to 5,507 feet and was completed for 1,920 bbls. and 5,000,000 feet of gas. These wells about mark the limits of production for the lower sands of the Sundance series.

Drilling in Hidden dome, Washakie County, limited the productive area to approximately 160 acres. The production all comes from lenticular sands below the Frontier on the flanks of the dome.

Muskrat Dome

The Sinclair-Wyoming Oil Co. made an oil discovery in the Embar horizon on the Muskrat dome in Fremont County in its No. 2-C Muskrat, NE SW SW section 1-33n-92w, but at the end of the year it had not been completed and tested. It topped the Embar lime at 7,268 feet and cored 25 feet of oil saturation to the present bottom of 7,293 feet. The 7-inch was cemented at 7,265 feet and plug was drilled. The hole was bailed down to 6,800 feet and oil stood 400 feet in the pipe when the bailer stuck. Subsequently the oil rose to 3,000 feet. It was fishing at the end of the year. The well had water in the Sundance at 5,935-6,188 feet. The location is 1½ miles southeast of the discovery in the NW SE SE section

Wyoming

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
BADGER BASIN:													
Daily average	40	42	36	35	38	37	40	42	41	40	39	40	
Month	1,240	1,218	1,116	1,050	1,178	1,110	1,240	1,302	1,230	1,240	1,170	1,240	14,334
BIG MUDDY:													
Daily average	1,478	1,344	1,501	1,472	1,446	1,529	1,436	1,421	1,405	1,360	1,667	1,473	
Month	45,818	38,976	46,531	44,160	44,826	45,870	44,516	44,051	42,150	42,160	50,010	45,663	534,731
BLACK MOUNTAIN:													
Daily average	.....	31	.....	.....	358	17	170	193	143	168	84	178	
Month	.....	899	.....	.....	11,098	510	5,270	5,983	4,290	5,208	2,520	5,518	41,296
BYRON-GARLAND:													
Daily average	1,097	35	411	786	2,034	404	1,269	2,726	3,875	4,001	5,108	2,496	
Month	34,007	1,015	12,741	23,580	63,054	12,120	39,339	84,506	116,250	124,031	153,240	77,376	741,259
DALLAS DERBY:													
Daily average	559	587	572	566	571	569	599	658	555	573	628	610	
Month	17,329	17,023	17,732	16,980	17,701	17,070	18,569	17,608	16,650	17,763	18,840	18,910	212,175
DUTTON CREEK:													
Daily average	37	31	53	62	56	61	55	59	56	61	57	61	
Month	1,147	894	1,643	1,860	1,736	1,830	1,705	1,829	1,680	1,891	1,710	1,891	19,821
SOUTH CASPER CREEK:													
Daily average	.....	.....	.....	.....	.....	.....	522	594	577	574	547	563	
Month	.....	.....	.....	.....	.....	.....	16,182	18,414	17,310	17,794	16,410	17,453	103,563
ELK BASIN:													
Daily average	681	547	637	308	359	408	429	456	478	385	627	512	
Month	21,111	15,863	19,747	9,240	11,129	12,240	13,299	14,136	14,340	11,935	18,810	15,872	177,722
FERRIS:													
Daily average	16	17	14	16	56	28	17	19	44	13	13	12	
Month	496	493	434	480	1,736	840	527	589	1,320	403	390	372	8,080
FRANNIE:													
Daily average	832	1,136	2,470	2,449	1,171	1,382	400	124	403	1,120	1,498	1,507	
Month	25,792	32,944	76,570	73,470	36,301	41,460	12,400	3,844	12,090	34,720	44,940	46,717	441,248
GRASS CREEK:													
Daily average	2,113	2,076	2,115	801	893	1,198	1,414	1,542	1,509	1,313	1,966	1,502	
Month	65,503	60,204	65,565	24,030	27,683	35,940	43,834	47,802	45,270	40,703	58,980	46,562	562,076
HAMILTON:													
Daily average	565	133	731	780	1,455	1,332	1,658	1,615	1,438	946	901	772	
Month	17,515	3,857	22,661	23,400	45,105	39,960	51,398	50,065	43,140	29,326	27,030	23,932	377,389
HUDSON:													
Daily average	243	238	252	270	350	292	307	292	308	327	309	311	
Month	7,254	6,902	7,812	8,100	10,850	8,760	9,517	9,052	9,240	10,137	9,270	9,641	106,535
LABARGE:													
Daily average	1,196	1,063	1,199	1,175	1,194	1,124	1,131	1,089	1,152	1,144	1,143	1,030	
Month	37,076	30,827	37,169	35,250	37,014	33,720	35,061	33,759	34,560	35,464	34,290	31,930	416,120
LANCE CREEK:													
Daily average	3,501	4,814	3,919	3,551	3,495	3,918	4,325	5,065	5,530	6,436	7,107	7,814	
Month	108,531	139,606	121,489	106,530	108,345	117,540	134,075	157,015	165,900	199,516	213,210	242,234	1,813,991
LOST SOLDIER:													
Daily average	1,213	1,388	1,346	1,354	1,229	1,394	1,213	1,364	1,242	1,258	1,253	1,235	
Month	37,603	40,252	41,726	40,620	38,099	41,820	37,603	42,284	37,260	38,998	37,590	38,285	472,140
OREGON BASIN:													
Daily average	1,907	1,249	1,554	1,751	2,357	1,872	3,882	3,998	3,811	2,351	2,212	2,676	
Month	59,117	36,221	48,174	52,530	73,067	56,160	120,342	123,938	114,330	72,881	66,360	82,956	906,076
OSAGE:													
Daily average	63	587	548	804	789	797	822	792	809	772	652	777	
Month	1,953	17,023	16,988	24,120	24,459	23,910	25,482	24,552	24,270	23,932	19,560	24,687	250,336
POISON SPIDER:													
Daily average	80	59	122	163	168	163	188	211	252	265	334	249	
Month	2,759	1,711	3,782	4,890	5,208	4,890	5,828	6,541	7,560	8,215	10,020	7,719	69,123
ROCK RIVER:													
Daily average	1,869	1,915	2,028	2,148	1,585	1,482	1,685	1,451	1,406	1,707	1,227	1,236	
Month	57,939	55,535	62,868	64,440	49,135	44,460	52,235	44,981	42,180	52,917	36,810	38,316	601,816
SALT CREEK:													
Daily average	16,417	15,859	17,260	17,240	16,350	16,646	16,760	15,956	16,474	16,588	16,344	16,382	
Month	508,927	459,911	535,060	517,200	506,850	499,380	519,560	494,636	494,220	514,228	490,320	507,842	6,048,134
HIDDEN DOME:													
Daily average	66	100	100	90	90	91	132	305	264	485	302	474	
Month	2,046	2,900	3,100	2,700	2,790	2,730	4,092	9,455	7,920	15,035	9,060	14,694	76,522
WAUGH DOME:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	51	128	224	120	
Month	.....	.....	.....	.....	.....	.....	.....	.....	1,530	3,968	6,720	3,720	15,938
BIG MEDICINE BOW:													
Daily average	.....	.....	.....	.....	.....	.....	270	105	176	487	2,664	871	
Month	.....	.....	.....	.....	.....	.....	8,370	3,255	5,280	15,097	79,920	27,001	138,923
MIDWAY:													
Daily average	50	24	64	45	43	56	32	41	43	37	28	33	
Month	1,550	696	1,984	1,350	1,333	1,680	992	1,271	1,290	1,147	840	1,023	15,156
TEAPOT:													
Daily average	15	4	21	20	25	25	22	23	19	18	23	21	
Month	465	116	651	600	775	750	682	713	570	558	690	651	7,221
QUEALY DOME:													
Daily average	76	85	85	125	110	438	75	74	444	419	623	.....	
Month	2,261	2,465	2,635	3,750	3,410	13,140	2,325	2,294	13,320	12,989	18,690	.....	77,219
WARM SPRINGS:													
Daily average	167	170	170	50	48	51	.....	.....	.....	.....	.....	.....	
Month	5,175	4,930	5,270	1,500	1,488	1,530	.....	.....	.....	.....	.....	.....	19,895
Daily average	34,276	33,534	37,208	36,061	36,270	35,314	38,853	40,125	42,505	42,976	47,580	42,955	38,986
Total 1936	1,062,556	972,486	1,153,448	1,081,830	1,124,370	1,059,420	1,204,443	1,243,875	1,275,150	1,332,256	1,427,400	1,331,605	14,268,839
Total 1935	1,028,439	936,981	1,019,743	1,118,852	1,084,698	1,160,513	1,097,308	1,222,012	1,182,983	1,136,513	1,083,110	1,166,613	13,237,765
Total 1934	895,359	872,848	972,970	936,548	1,111,533	1,013,668	1,156,279	1,183,686	1,063,429	1,132,993	1,080,162	1,069,520	12,488,995
Total 1933	979,290	855,568	968,750	898,860	934,960	899,850	967,959	952,436	923,370	910,935	889,530	914,221	11,095,723
Total 1932	1,010,445	1,093,097	1,189,997	1,103,310	1,157,323	1,048,080	1,152,270	1,167,615	1,074,990	1,007,376	1,007,700	982,545	12,994,748

34-34n-92w, which was completed in 1928 in the Frontier at 4,340 feet for 75,000,000 feet of gas per day. The two wells are separated by a fault. A third well drilled in another fault block to the northwest of the discovery was abandoned in 1929 after going to 6,081 feet.

Another discovery in a deeper horizon, the Tensleep, in the Lance Creek field was reported in May in the Ohio Oil Co. No. 5 Converse Sheep, approximately on the apex of the structure in the C SE SW section 32-36n-65w. It topped the Sundance formation at 3,493 feet and topped a gas sand at 3,702 feet and the red beds at 3,750 feet. At this depth the company discontinued giving out information. The most reliable information is that it cored into the Tensleep at some point below 4,600 feet and in a test made at night flowed 200 bbls. an hour of plus 40 gravity oil with only a trace of sulfur, with 7,000,000 to 8,000,000 feet of gas a day. Estimates placed the capacity at between 3,000 and 4,800 bbls. daily. This is the only well drilled below the red beds in Lance Creek. The well was not put on production and it is supposed to have plugged off the discovery until such time as the oil is needed and thereby prevent an expensive offsetting campaign for the deeper pay. The elevation is 4,366 feet.

Badger Basin Deep Sand

The Badger Basin field, a structure in the center of the Big Horn Basin in Park County, the highest producing field in the Rocky Mountain area, was extended three-fourths of a mile to the southeast in the Kesolute Oil Co. No. 1 State, C NW NW section 16-57n-101w. The discovery well in the NE SW NE section 17-57-101, which holds the depth record for the Rocky Mountain area, was completed in 1931 at 8,725 feet for 50 bbls. per day of 50 gravity light oil in the first and second Frontier. No other well was drilled until No. 1 State was completed late in 1936 at 8,469 feet for 200 bbls. per day through a three-eighths inch choke on the tubing. The elevation is 4,279 feet. It had the second Frontier at 8,422-69 feet. The operators express the opinion it would have encountered more saturated sand upon drilling deeper into the pay, but stopped on account of weather conditions. The structure comprises 26,000 acres of which approximately 1,000 acres is now proven by the two wells. The second well is approximately 125 feet higher on structure than the discovery.

On the Garland dome in Big Horn County, the Stock Oil Co. No. 1 Griffin, NW cor. Lot 40, section 4-55n-97w, was completed in the Amsden and Madison lime at 4,200 feet for 400 bbls. per day, naturally, estimated. While it was within the unitized area expected to be productive, it proved up about half a mile of territory by the drill. The Madison was at 3,854-4,200 feet.

A fault block at the south end of the Byron field in Big Horn County was proven in the Tensleep at 5,355-71 feet for 600 bbls. a day in the Taylor Oil Co. No. 1 Hoskins, Lot 5, section 25-56n-97w. While the well is 1½ miles south of the nearest producer, it does not necessarily mean the intervening area will be productive as there is an undrilled fault block between the main part of the field and the block proven by this well.

Four-Mile Extension

The Allen Lake gas field in Carbon County was extended 4 miles to the southeast in the Medicine Bow Oil Co. No. 1 Hintze-Government, C NE SE section 18-22n-78w, which was completed in the first Sundance at 2,033-58 feet for 25,000,000 feet a day. The Ohio Oil Co. has three gas wells in the Sundance 4 miles to the northwest which were drilled two years ago. The new well indicates that these were on a nose of the main structure and that Allen Lake gives evidence of being a large dome with very favorable prospects for good oil and gas production in sands below the first Sundance which have not been tested.

The South Baxter Basin gas field in Sweetwater County was extended 1¼ miles to the southwest in the Mountain Fuel Supply Co. No. 1 Nightingale, C SW NE section 32-16n-104w. It was completed at 2,754 feet for 7,500,000 feet of sweet gas in the Frontier at 2,680-2,754 feet. Elevation is 7,524 feet.

The Waugh dome in Hot Springs County, in which the California Exploration Co. and the California Co. drilled a discovery in 1935, was tested one location to the east of the discovery in these companies' No. 2 Government, NW SW NW section 7-44n-96w, and abandoned at 4,245 feet in the Tensleep topped at 4,177 feet. The discovery made 538 bbls. first 24 hours at 3,700 feet. These are the only wells drilled on the structure.

The Union Oil Co. of California and the Mutual Oil Syndicate drilled a test through the Sundance to the Jelm sand in the top of the red beds on the Dutton Creek dome in Carbon County in their No. 1 Union Pacific, NE SW SE section 1-18n-78w, and abandoned it at 5,464 feet. This field has some production in the Muddy sand. The deep test had water in the Sundance at 5,334-5,450 feet and in the Jelm sand at 5,450-60 feet. There was some saturation in the Muddy at 4,788-4,817 feet.

WYOMING

Summary of Wells Completed in 1936

County—	Comp.	Prod.	Dry	Gas
Albany	8	1,562	4	0
Big Horn	12	4,013	3	0
Carbon	20	18,247	6	3
Converse	2	25	0	1
Fremont	2	255	0	0
Goshen	1	0	1	0
Hot Springs	9	1,708	2	1
Lincoln	1	0	1	0
Natrona	1	50	0	0
Niobrara	28	36,518	2	0
Park	1	50	0	0
Sweetwater	3	0	1	2
Sublette	3	45	1	0
Uinta	3	0	3	0
Washakie	12	1,064	3	0
Weston	25	213	8	1
Total 1936	131	63,750	35	8

Completions by Months

	Comp.	Prod.	Dry	Gas
January	8	7,292	1	0
February	4	1,680	3	0
March	8	8,853	1	0
April	5	3,134	1	0
May	9	2,076	3	0
June	9	5,389	1	0
July	10	5,097	2	1
August	16	7,812	4	0
September	14	9,111	6	1
October	13	6,075	2	2
November	14	3,423	3	2
December	21	3,808	8	2
Total 1936	131	63,750	35	8
Total 1935	92	39,099	28	6
Difference	49	24,651	7	2

UTAH

Utah again failed to score with a discovery in 1936. The only important development was a half-mile extension of the Clay Basin gas field in Daggett County, northeastern corner of the state, in the Dakota sand, to the northwest. This was the Mountain Fuel Supply Co. No. 1 State, NW SE SW section 16-3n-24e, which was drilled to the Morrison at 6,165 feet and plugged back to the Dakota at 5,740-5,877 feet and completed for 8,500,000 feet per day. The discovery well was completed in this field in the Frontier in 1927 by the Producers & Refiners Corp. Last year the Mountain Fuel Supply Co. tested the Sundance in its No. 2 Murphy, NE NE section 21-3n-24e, and found water. It was plugged back to the Dakota at 5,727-5,808 feet and completed for 32,000,000 feet a day.

UTAH

Summary of Wells Completed in 1936

County—	Comp.	Prod.	Dry	Gas
Daggett	1	0	0	1
Emery	1	0	1	0
Grand	1	0	1	0
Washington	5	15	4	0
Total, 1936	8	15	6	1

Completions by Months

	Comp.	Prod.	Dry	Gas
January	1	0	1	0
March	3	0	3	0
June	1	0	1	0
November	1	0	0	1
December	2	15	1	0
Total, 1936	8	15	6	1
Total, 1935	5	0	3	2
Difference	3	15	3	1

NEBRASKA

Five wildcats were drilling in Nebraska in 1936, of which only one was completed. This was Byrd-Frost, Inc., and Magnolia Petroleum Co. No. 1 Abbott, NE NE NW section 22-24n-38w, in Grant County, which topped the granite at 4,036 feet and abandoned at 4,040 feet.

Kansas Fields

(Continued from Page 90)

pumped 8 bbls. of oil and 2 bbls. of water on completion test, and was completed in second hole after a difficult fishing job necessitated abandoning original hole. It plugged back from 4,563 feet, total depth in granite, to 3,864 feet to complete in October. Continental Oil Co. completed No. 1 Holcomb, C SE NW section 26-11-23w, in April. It had Oswald lime at 3,602 feet; total depth, 3,654 feet; acidized and produced 616 bbls. of oil, initially.

Wildcatting in Kansas showed no sign of letup as the years changed. In fact, indications were that the search for oil in Kansas would gain impetus during 1937, with operators seeking oil and gas in many areas not previously explored. Operations will continue unabated in the more prolific and undefined proven areas, and exploration will be carried into nearly every county in the western two-thirds of the state, it was indicated.

Results of Wildcat Drilling, 1936

County—	Oil and gas wells	Dry holes	Average depth of dry holes
Barber	0	1	5,529
Barton	6 (1 gas)	15	3,464
Butler	2	7	2,461
Clark	1	1	6,801
Cowley	6 (4 gas)	16	2,773
Chautauqua	1	0	0
Ellis	12	21	3,700
Ellsworth	0	8	3,233
Elk	1	0	0
Finney	2 (2 gas)	0	0
Graham	0	3	3,991
Greenwood	1	6	1,989
Harper	0	1	6,004
Harvey	1	4	3,417
Haskell	2 (2 gas)	0	0
Kingman	0	4	4,402
Lyon	0	1	2,300
Marion	0	5	2,781
McPherson	1	3	3,496
Ness	1	1	4,696
Norton	0	2	3,386
Pawnee	1	2	4,196
Pratt	1 (1 gas)	2	4,662
Reno	0	14	4,091
Rice	8 (1 gas)	19	3,456
Rooks	2	7	3,657
Rush	0	6	3,686
Russell	10	17	3,347
Saline	0	1	3,426
Seward	0	1	2,850
Sedgwick	0	7	3,682
Smith	0	1	4,161
Stafford	1	8	3,729
Sumner	1 (1 gas)	12	3,826
Trego	2	4	4,378
Woodson	2	15	1,521
Total	65	215	

Average depth oil and gas wells, ft.	3,229
Average depth of dry holes, ft.	3,381
Percentage of oil wells	18.9
Percentage of gas wells	4.3
Percentage of dry holes	76.8

KANSAS

Summary of Completions in 1936

County—	Comp.	Prod.	Dry	Gas
Barber	5	1,164	1	1
Barton	159	138,968	35	1
Butler	63	6,134	19	2
Chase	2	100	1	0
Chautauqua	7	1,895	3	0
Clark	2	2,358	1	0
Coffey	20	1,211	3	0
Cowley	72	15,200	32	5
Dickinson	1	0	1	0
Elk	2	684	0	0
Ellis	91	57,696	31	0
Ellsworth	48	24,328	14	0
Finney	2	0	0	2
Graham	3	0	3	0
Grant	3	0	0	3
Greenwood	75	1,795	36	0
Harper	1	0	1	0
Harvey	25	11,505	6	6
Haskell	3	0	0	3
Kingman	6	192	5	0
Lincoln	1	0	1	0
Lyon	1	0	1	0
Marion	8	722	6	0
McPherson	68	38,723	9	1
Morris	1	0	1	0
Morton	4	0	0	4
Ness	2	684	1	0
Norton	2	0	2	0
Pawnee	3	187	2	0
Pratt	5	345	2	1
Reno	169	92,123	24	3
Rice	310	255,575	51	2
Rooks	10	1,553	5	0
Rush	26	14,882	11	10
Russell	263	202,438	44	0
Saline	1	0	1	0
Scott	2	1,177	1	0
Sedgwick	18	1,882	13	0
Seward	1	0	1	0
Smith	1	0	1	0
Stafford	29	12,949	14	0
Stevens	15	0	1	14
Sumner	93	68,792	22	2
Trego	12	2,461	5	0
Woodson	86	8,054	35	0
Total 1936	1,721	965,777	446	61

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	117	76,963	26	5
February	87	26,305	24	4
March	116	55,871	20	1
April	161	89,321	43	3
May	133	62,803	44	4
June	143	70,133	36	4
July	177	99,913	44	6
August	139	60,450	44	4
September	133	87,145	34	9
October	168	114,063	37	5
November	136	84,242	34	3
December	211	138,537	60	9
Total 1936	1,721	965,777	446	61
Total 1935	1,210	845,522	281	39
Difference	511	120,255	165	22
Total 1934	835	300,789	221	22
Total 1933	540	193,736	134	16
Total 1932	572	193,139	188	21
Total 1931	470	144,921	129	112
Total 1930	1,036	288,296	423	168
Total 1929	1,058	165,611	459	52
Total 1928	1,157	101,043	466	115

Kern County Suit

In a suit filed at Los Angeles, Calif., last week the government seeks title to a $10,000,000 section of oil land in Kern County, California, and $13,000,000 in oil and gas allegedly extracted from the land.

Defendants include Standard Oil Co. of California, the Standard Gasoline Co., Pan American Petroleum Co., Southern California Gas Co., Chase National Bank, Bank of America, Tide Water Associated Oil Co. and Mrs. Edward L. Doheny.

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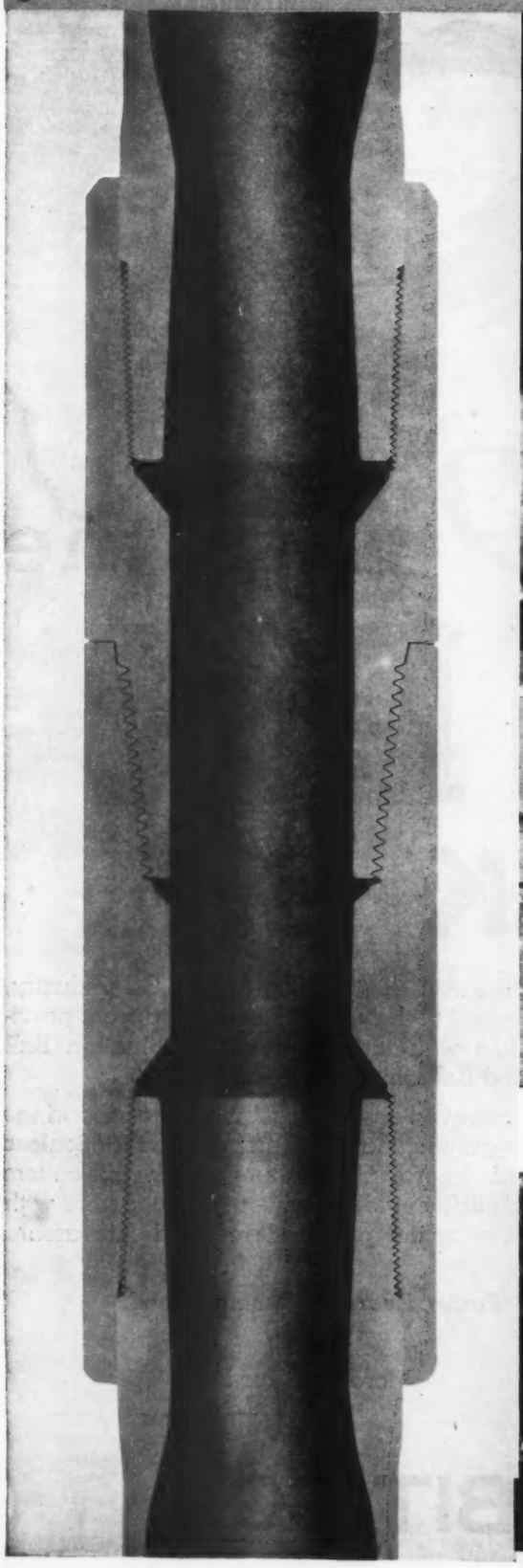

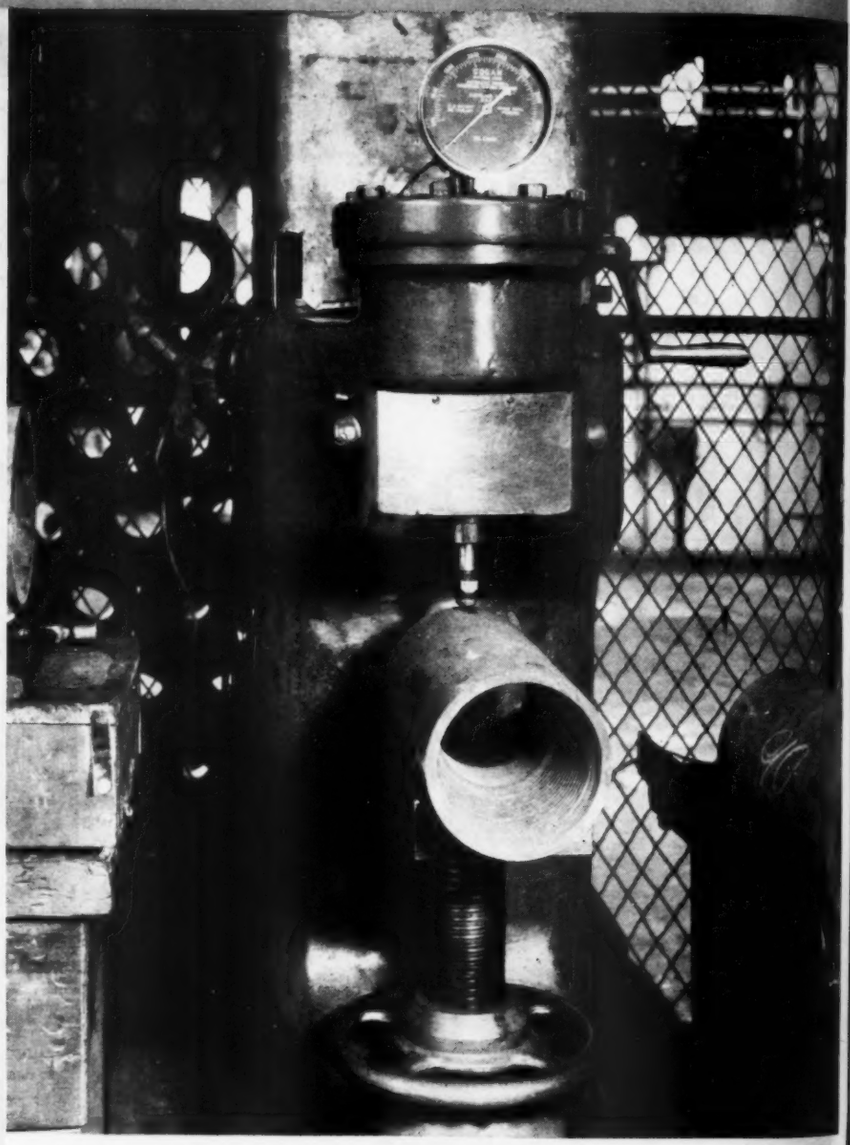

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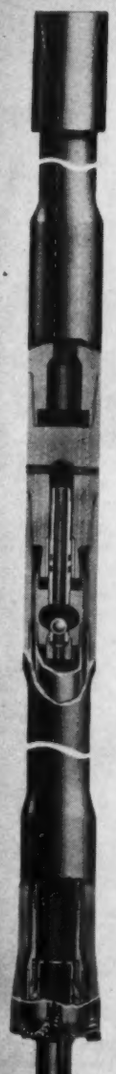

FIG. 2
Part K-1
Outside Vent Core Drill with Overshot Upper Connection and Hard Formation Cutter Head

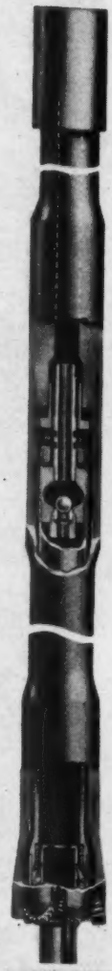

FIG. 3
Part K-2
Inside Vent Core Drill with Overshot Upper Connection and Hard Formation Cutter Head

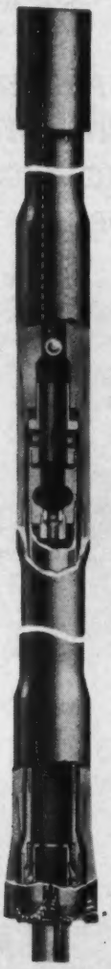

FIG. 4
Drop Ball Type. Same as Fig. 3 but without the Vent Tube and Hose Connector

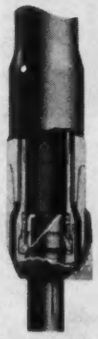

FIG. 5
The Soft Formation Cutter Head shown above is interchangeable with the Hard Formation Cutter Head

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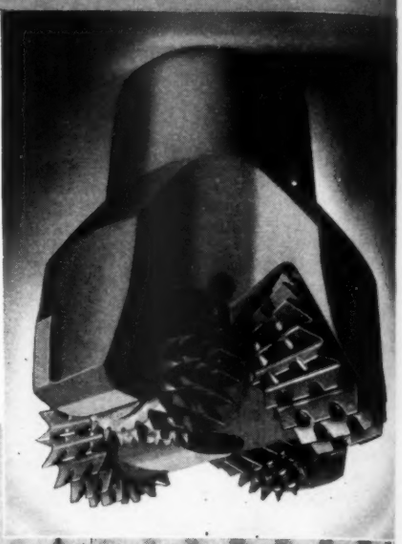

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Annual Review

NOTABLE YEAR IN TEX-LA-ARK AREA; NEW POOLS AND EXTENSIONS

By MITCHELL TUCKER

The extension of the Rodessa field in all directions in Caddo Parish, Louisiana, and Cass County, Texas; the discovery of important pools in North Louisiana and Arkansas, and the possibility of an extension of Rodessa field into Jefferson County, Texas, were among the high lights in a most successful year in the Tex-La-Ark. division. About 90 per cent more wells were completed in North Louisiana than in 1935, while in the border counties of Texas the increase was from 12 wells in 1935 to 194 in 1936. Arkansas showed a decline in completions but made up for it with two new pools, one of which is expected to make a major producing area.

NORTH LOUISIANA

Bienville Parish

In the Lake Bistineau shallow gas producing area, Bienville Parish, De Soto Oil & Gas Co. opened a deeper pay level in basal Lower Glen Rose at its Dunn & Olson No. 1, section 15-16-10, gauging 20,000,000 feet of saturated gas during the latter part of December.

The Arcadia gas area in this same parish was opened during the early part of the year by Lide, Greer & Marr in the completion of No. 1 Davis Bros. Lumber Co., section 12-16-5w, as a huge saturated gasser, gauging 70,750,000 feet with 6,250 pounds rock pressure from total depth of 6,141 feet in the Oolitic limestone of Glen Rose.

Bossier Parish

Discovery of oil on the southwestern flank of the Sligo gas field in Bossier Parish was made during the latter part of October by United Gas Public Service Co. in No. 1-F H. L. Skannal, NE section 26-17-12, which flowed 175 bbls. daily through one-quarter inch tubing choke from Pettitt sand topped at 5,169 feet, total depth 5,201 feet. A second well was completed about 30 days later 1 mile to the northwest, flowing 53 bbls. hourly from the same formation, which served to indicate that an extended campaign will be carried on here during 1937. The Pettitt sand (lowermost member of Lower Glen Rose) has heretofore been productive of gas, but this was its discovery point for oil accumulation.

Earlier in the year Producers Oil & Gas No. 1 Pettitt, section 17-17-11, Sligo field, found the Oolitic lime of Glen Rose productive of gas, gauging 12,300,000 feet from total depth of 5,199 feet, sand topped 5,102 feet. Formerly gas production had been from the Nacatoch around the 900-foot level.

Caddo Parish

Near midyear the shallow Blanchard gas area in Caddo Parish added a new producing level in the Travis Peak section by the completion of a gas distillate well by United Gas Public Service Co. at its No. 1-A Wheeler, section 16-18-16, total depth 5,907 feet, gauging 3,000,000 feet daily.

Claiborne Parish

What will probably prove a major discovery in 1936 loomed as the year closed. Regarded as a rank wildcat, E. T. Oakes and H. D. Easton's No. 2 Patton, section 1-20-5, Claiborne Parish, flowed on initial test 150 bbls. daily through 20/64-inch choke, tubing pressure 125 pounds, gravity of oil 36.6, from porous Lower Glen Rose, 5,346 to 5,379 feet, total depth. This discovery is 6 miles north of Sugar Creek and about 10 miles east of the Homer oil field. Active exploration may be expected in this area during the early months of 1937.

Lincoln Parish

First production from the Travis Peak was found by Lide, Greer & Marr in No. 1 Gardner, section 10-17-14, Lincoln Parish, at 6,576 feet through the completion of a 67,634,000-foot wet gasser, rock pressure 2,600 pounds. This discovery is about one-half mile north of the same firm's No. 1 Fowler, completed as a gas-distillate discovery in the Lower Glen Rose, total depth 5,300 feet.

Webster Parish

The highly regarded Sibley area, Webster Parish, was discovered near the midyear by J. P. Evans in No. 1 Crichton, section 35-18-9, which gauged about 80,000,000 feet of wet gas, making about 900 gallons of distillate per 1,000,000 feet of gas, open flow. Total depth 5,590 feet. The bottom 35 feet of sand (correlated with the Gloyd sand at Rodessa of Lower Glen Rose age) was highly porous and saturated. Two other offsets were immediately drilled, which were also completed as large

North Louisiana

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
BELLEVUE:													
Daily average	457	453	433	437	459	461	749	836	867	774	715	789	
Month	14,167	13,137	13,423	13,110	14,229	13,830	23,219	25,916	26,010	23,994	21,450	24,459	226,944
CADDO (light):													
Daily average	4,103	4,088	4,156	4,157	4,069	4,046	4,105	4,022	4,064	3,957	3,889	3,923	
Month	127,193	118,552	128,836	124,710	126,139	121,380	127,255	124,682	121,920	122,667	116,670	121,613	1,481,617
CADDO (heavy):													
Daily average	2,310	2,311	2,425	2,421	2,492	2,487	2,392	2,508	2,588	2,672	2,666	2,663	
Month	71,610	67,019	75,175	72,630	77,252	74,610	74,152	77,748	77,640	82,832	79,980	82,553	913,201
CONVERSE:													
Daily average	1,212	1,125	1,199	1,202	1,136	1,115	887	903	822	805	876	984	
Month	37,572	32,625	37,169	36,060	35,216	33,450	27,497	27,993	24,660	24,955	26,280	30,504	373,981
COTTON VALLEY:													
Daily average	193	255	336	337	405	472	320	405	831	809	843	815	
Month	5,983	7,395	10,416	10,110	12,555	14,160	9,920	12,555	24,930	25,079	25,290	25,265	183,658
DESOTO-RED RIVER:													
Daily average	1,331	1,299	1,319	1,315	1,325	1,338	1,452	1,496	1,449	1,426	1,369	1,348	
Month	41,261	37,671	40,889	39,450	41,075	40,140	45,012	46,376	43,470	44,206	41,070	41,788	502,408
ELM GROVE:													
Daily average	372	354	407	405	470	469	409	389	404	415	346	340	
Month	11,532	10,266	12,617	12,150	14,570	14,070	12,679	12,059	12,120	12,865	10,380	10,540	145,848
HAYNESVILLE:													
Daily average	3,365	3,366	3,370	3,373	3,419	3,402	3,557	3,339	3,382	3,180	3,146	3,265	
Month	104,315	97,614	104,470	101,190	105,989	102,060	110,267	103,509	101,460	98,580	94,380	101,215	1,225,049
HOLLY:													
Daily average	152	155	152	151	146	152	131	130	136	149	145	142	
Month	4,712	4,495	4,712	4,530	4,526	4,560	4,061	4,030	4,080	4,619	4,350	4,402	53,077
HOMER:													
Daily average	2,581	2,580	2,508	2,586	2,648	2,648	2,607	2,573	2,584	2,576	2,571	2,563	
Month	80,011	74,820	77,748	77,580	82,088	79,440	80,817	79,763	77,520	79,856	77,130	79,453	946,226
PLEASANT HILL:													
Daily average	165	162	159	155	158	156	160	159	141	145	146	151	
Month	5,115	4,698	4,929	4,650	4,898	4,680	4,960	4,929	4,230	4,495	4,380	4,681	56,645
RODESSA:													
Daily average	29,856	39,995	42,469	42,465	61,483	56,110	60,388	60,752	58,749	55,327	56,863	58,385	
Month	925,536	1,159,855	1,316,539	1,273,950	1,905,973	1,683,309	1,872,028	1,883,312	1,762,470	1,715,137	1,705,890	1,809,935	19,013,925
SAREPTA-CARTERVILLE:													
Daily average	507	505	499	501	427	463	515	468	417	456	447	428	
Month	15,717	14,645	15,469	15,030	13,237	13,890	15,965	14,508	12,510	14,136	13,410	13,268	171,785
URANIA:													
Daily average	2,614	2,650	2,646	2,644	2,865	2,786	2,829	2,883	2,966	2,807	2,746	2,784	
Month	81,034	76,850	82,026	79,320	88,815	83,580	87,699	89,373	88,980	87,017	82,380	86,304	1,013,378
ZWOLLE:													
Daily average	1,316	1,309	1,211	1,265	1,247	1,112	1,125	1,062	979	924	891	856	
Month	40,796	37,961	37,541	37,950	38,657	33,360	34,875	32,922	29,370	28,644	26,730	26,536	405,342
SLIGO:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	171	505	506	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,301	15,150	15,686	36,137
Daily average	50,534	60,607	63,289	63,414	82,749	77,217	81,626	81,925	80,379	76,593	78,164	79,942	73,085
Total 1936	1,566,554	1,757,603	1,961,959	1,902,420	2,566,219	2,316,510	2,530,406	2,539,675	2,411,370	2,374,383	2,344,920	2,478,202	26,749,221
Total 1935	721,897	644,224	711,791	691,590	716,167	693,420	716,844	764,367	801,540	971,168	985,260	1,211,232	9,629,496
Total 1934	854,577	786,128	842,549	783,240	770,060	769,890	768,459	758,632	720,510	741,055	719,280	736,281	9,251,061
Total 1933	918,933	843,500	981,212	903,660	829,374	759,270	784,083	817,191	773,940	796,018	776,010	796,576	9,979,767
Total 1932	897,295	824,412	866,636	869,580	915,802	895,440	925,629	910,191	898,740	927,613	891,870	908,765	10,731,973

gas-distillate producers. Flank tests of this area in search of oil may be expected this year.

Definite discovery of two deep producing horizons, and indications of two others, were made by Ohio Oil Co. in the formerly shallow Cotton Valley field, in Webster Parish. No. 6 R. L. Holloway, section 23-21-10, was originally scheduled for a 10,000-foot test, and was drilled to 8,556 feet. Four distinct high-pressure and well saturated zones were logged from a point below the depth of former production to the 8,500-foot level. For mechanical reasons it was decided to plug back to 5,600 feet and complete well in what was later named the Holloway sand, found here at 5,536-52 feet. After perforating pipe at this point the well flowed at the rate of 60 bbls. per hour, but settled down for an accurate gauge of 23 bbls. hourly, 45.5 gravity oil, through three-eighths inch choke, tubing pressure 1,700 pounds, casing pressure 2,000 pounds, with about 5,000,000 feet of gas. The entire section of this exploratory hole was cored from 5,725-7,254 feet. About 25 feet of saturated sand was found at 8,120-45 feet, and drill stem test indicated a 25,000,000-foot gas volume. Again at about 8,269 feet a highly saturated gas section was drilled. At 8,483 feet a change in formation was noted, accompanied by heavy showings of gas and distillate.

An active campaign to adequately test these horizons began immediately after discovery of the Holloway sand. Eight wells were started, two were temporarily abandoned due to mechanical troubles, one was completed as a gas-distillate well in the Holloway sand, and the other five missed the Holloway saturation entirely but are being carried to the 8,100-foot level for testing. Ohio Oil Co. No. 4 Bodcaw Lumber Co., NE SE section 28-21-10, cored oil sand at 8,172-88 feet, and on the initial test gauged 25,000,000 feet of gas daily, carrying heavy distillate saturation. This well was in the process of testing as the year closed.

Sabine Parish

The uncovering of a new structure, or a deeper pay horizon, in the shallow Converse oil field in Sabine Parish was indicated near the end of the year by Cox & Whitehurst No. 1 Whitney Corp., section 8-9-13, after the well blew out several times and made large flows of gas and distillate from Oolitic lime of Lower Glen Rose. Mechanical conditions of the well made it impossible to be completed at this level, but the significance of the showings obtained there remain, and the level will probably be thoroughly tested during 1937.

NORTH LOUISIANA

Summary of Completions in 1936

Parish—	Comp.	Prod.	Dry	Gas*
Bienville	7	0	5	2
Bossier	37	1,975	8	7
Caddo	363	344,100	19	3
Catahoula	1	0	1	0
Caldwell	8	0	8	0
Claiborne	8	110	5	2
DeSoto	20	360	13	3
Grant	17	390	9	0
Franklin	1	0	1	0
Jackson	3	0	3	0
LaSalle	10	150	5	0
Lincoln	3	0	2	1
Morehouse	59	0	0	58
Natchitoches	4	0	4	0
Ouachita	8	0	1	7
Red River	8	4	7	0
Richland	2	0	2	0
Sabine	39	1,355	17	0
Union	41	0	1	40
Vernon	1	0	1	0
Webster	7	480	2	4
Winn	1	0	1	0
Total 1936	648	348,924	115	127

Rodessa wells in Caddo Parish gauged by making one-hour flow through restricted choke and multiplying by 24.

*Gas production: Bossier Parish, 180,800,000 feet; Bienville, 90,750,000 feet; Caddo, 4,500,000 feet; Claiborne, 25,000,000 feet; DeSoto, 26,000,000 feet; Lincoln, 67,634,000 feet; Morehouse, 291,500,000 feet; Ouachita, 15,000,000 feet; Union, 324,500,000 feet; Webster, 165,000,000 feet.

Summary by Months for 1936

	Comp.	Prod.	Dry	Gas
January	48	46,374	10	4
February	47	39,685	13	8
March	47	32,105	9	9
April	54	61,545	9	9
May	80	69,091	7	16
June	52	15,767	12	9
July	69	21,352	6	19
August	53	17,912	6	11
September	45	9,483	9	12
October	72	20,458	10	11
November	40	11,002	11	7
December	41	4,150	13	12
Total 1936	648	348,924	115	127
Total 1935	343	188,884	121	98
Difference	305	160,040	6	29

ARKANSAS

Ouachita County

Productivity of the Permian lime on the northeastern flank of the Smackover oil and gas field, in Ouachita County, was proven in April by Phillips Petroleum Co. No. 1 Reynolds, section 27-15-15. From final total depth of 4,926 feet, the well gauged 50,000,000 feet of gas and 60 bbls. of distillate. Other wells drilled in the immediate area indicated a small productive pool, and the presence of salt water discouraged additional development.

Miller County

A new deep oil-producing field in the southwest corner of Arkansas, 4 miles northeast of the Garland City field, Miller County, seemed definitely assured as the year closed, and at that time it was impossible to evaluate the actual worth of the discovery. C. V. Lenz No. 7 Dale, section 24-15-26, drilled the Lower Glen Rose and had heavy oil showings at 4,210-17 feet. At the present time the well was flowing about 20 bbls. daily by heads, while standard pumping equipment was being insalled.

Nevada County

Arkansas' most important discovery for the year was undoubtedly that of the Troy field a few miles to the southeast of Irma, in Nevada County, Benedum-Trees Oil Co. No. 1 Grove, SE NW section 10-14-20, was originally planned as a Travis Peak test, having a contract depth of 5,000 feet. However, this well discovered large oil accumulation in both the Nacatoch sand level at about 1,250 feet, and in the Tokio of basal Upper Cretaceous at the 2,200-foot level. No. 1 Grove was completed in the Tokio, pumping 19 bbls. per hour from sand 2,178-90 feet. An active campaign followed, and at the end of the year five producing wells had been completed and eight are rigging up or drilling.

ARKANSAS

Summary of Completions in 1936

County—	Comp.	Prod.	Dry	Gas*
Arkansas	1	0	1	0
Ashley	1	0	1	0
Bradley	2	0	2	0
Calhoun	2	0	2	0
Cleveland	1	0	1	0
Columbia	3	0	3	0
Clark	1	0	1	0
Dallas	3	0	3	0
Garland	1	0	1	0
Hempstead	4	0	4	0
Grant	1	0	1	0
Lafayette	5	0	5	0
Lonoke	1	0	1	0
Miller	12	100	10	0
Nevada	6	1,750	1	1
Ouachita	15	395	8	2
Pulaski	1	0	1	0
Sevier	1	0	1	0
Union	28	5,074	13	2
Total 1936	89	7,319	60	5

*Gas production: Ouachita County, 19,700,000 feet; Union, 270,000 feet.

Summary by Months for 1936

	Comp.	Prod.	Dry	Gas
January	14	1,700	10	0
February	3	1,350	1	0
March	7	995	3	1
April	5	130	3	0
May	9	538	6	1
June	8	107	6	0
July	9	108	7	1
August	9	0	8	1
September	5	220	3	0
October	6	0	6	0
November	8	890	5	1
December	6	1,281	2	0
Total 1936	89	7,319	60	5
Total 1935	115	8,276	73	2
Difference	26	957	13	3

EAST TEXAS (Border Counties)

Cass County

Cass County, Texas, became one of the major oil-producing counties of that state during 1936 as important extensions were made southwestward in the Rodessa field. At the end of the year production had extended about 8 miles into the county, and a daily average production of about 34,000 bbls. was being made. The westward limit in this county had not yet been defined.

Marion County

At the end of the year a new discovery or a 13-mile extension to the Rodessa field was indicated by Holcomb and Thomason No. 1 Lizzie Henderson, R. Bennington Survey, in Marion County, just north of Jefferson, which reported attractive showings in the Gloyd formation, testing about 5,000,000 feet of wet gas daily. Deepening and testing of this well had not been completed, but its importance is recognized among the results of 1936 wildcat activity.

Shelby County

H. A. Stebbinger and others No. 1 Pickering Lumber Co., C. E. Henry Survey, Shelby County, was completed as a gasser, spraying some oil. Estimated volume was 30,000,000 feet daily. It opened a Lower

(Continued on Page 113)

Arkansas

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
CHAMPAGNOLLE:													
Daily average	2,826	2,766	3,455	3,451	3,212	2,933	2,739	2,581	2,216	2,206	2,101	2,127	
Month	87,606	80,214	107,105	103,530	99,572	87,990	84,909	80,011	66,480	68,386	63,030	65,937	994,770
EL DORADO:													
Daily average	2,144	2,135	2,092	2,097	2,113	2,145	2,136	2,114	2,105	2,108	2,111	2,103	
Month	66,464	61,915	64,852	62,910	65,503	64,350	66,216	65,534	63,150	65,348	63,330	65,193	774,765
LISBON:													
Daily average	290	304	296	290	293	299	293	292	291	290	289	291	
Month	8,990	8,816	9,176	8,700	9,083	8,970	9,083	9,052	8,730	8,990	8,670	9,021	107,281
MILLER COUNTY:													
Daily average	1,315	1,228	989	988	1,041	1,017	880	737	675	656	672	616	
Month	40,765	35,612	30,659	29,640	32,271	30,510	27,280	22,847	20,250	20,336	20,160	19,096	329,426
NEVADA:													
Daily average	834	830	807	811	867	878	869	863	861	835	833	837	
Month	25,854	24,070	25,017	24,330	26,877	26,340	26,939	26,753	25,830	25,885	24,990	25,947	308,832
SMACKOVER (Light):													
Daily average	2,211	2,145	2,198	2,194	2,145	2,276	2,244	2,195	2,191	2,174	2,169	2,111	
Month	68,541	62,205	68,138	65,820	66,495	68,280	69,564	68,045	65,730	67,394	65,070	65,441	800,723
SMACKOVER (Heavy):													
Daily average	17,679	17,540	17,388	17,392	17,758	17,831	17,836	17,865	17,505	17,711	17,908	17,547	
Month	548,049	508,660	539,028	521,760	550,498	534,930	552,916	553,815	525,150	549,041	537,240	543,967	6,465,044
STEPHENS:													
Daily average	625	595	571	565	563	589	588	591	579	586	576	591	
Month	19,375	17,255	17,701	16,950	17,453	17,670	18,228	18,321	17,370	18,166	17,280	18,321	214,090
URBANA:													
Daily average	2,241	2,054	2,069	2,073	1,957	1,863	1,832	1,744	1,675	1,692	1,673	1,662	
Month	69,471	59,566	64,139	62,190	60,667	55,890	56,792	54,064	50,250	52,452	50,190	51,522	687,193
TROY:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	491	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,221	15,221
Daily average	30,165	29,697	29,865	29,861	29,949	29,831	29,417	28,982	28,098	28,258	28,332	28,376	29,223
Total 1936	935,115	858,313	925,815	895,830	928,419	894,930	911,927	898,442	842,940	875,998	849,960	879,656	10,697,345
Total 1935	974,175	861,588	950,336	917,520	967,262	933,810	944,942	939,703	907,260	932,201	895,320	914,469	11,138,586
Total 1934	987,412	875,224	958,489	918,810	920,850	923,820	985,738	973,400	937,260	948,073	918,480	1,011,902	11,359,458
Total 1933	993,457	880,208	493,702	909,120	928,667	901,770	946,926	971,292	953,580	1,017,885	986,910	1,016,118	11,449,635
Total 1932	1,101,616	1,008,563	1,062,897	1,048,620	1,064,602	1,022,970	1,060,386	1,062,897	1,019,250	1,019,931	1,020,600	1,037,539	12,529,870

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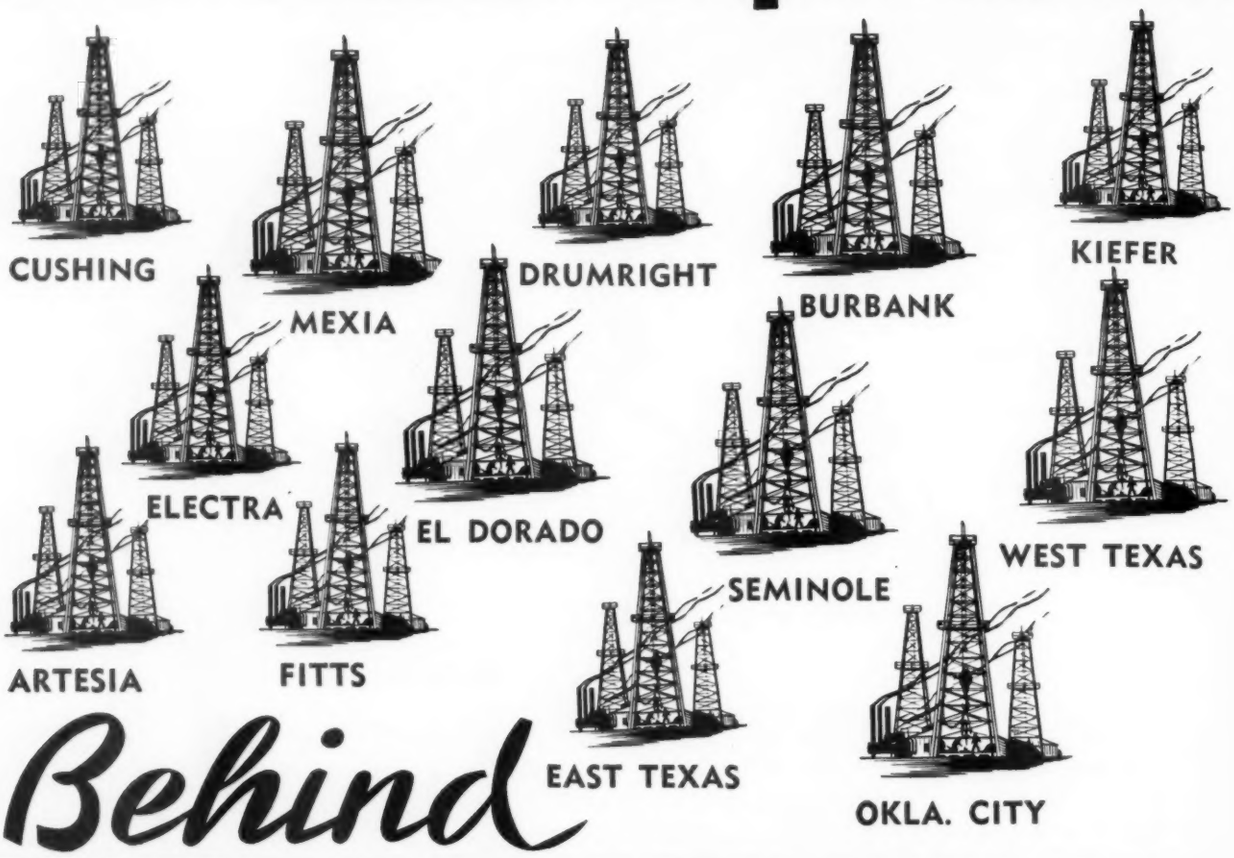

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Thirty years ago, when Oklahoma was still the Indian Territory and before the production, transportation, refining and marketing of petroleum became a major world industry, and when the Mid Continent field was a matter of future development, this organization was pioneering the manufacture of oil field equipment.

Through the years it has faithfully served the needs of operators in the boom days of Cushing, Mexia, Drumright, Burbank, Electra, El Dorado, Garber, Artesia, Seminole, Hobbs, Oklahoma City, East Texas and Fitts. We have won our spurs through long years of faithful service: earned the privilege of serving a great industry.

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Annual Review

MICHIGAN'S NEW RECORD FOR FIELD WORK; SIX NEW OIL POOLS

By PAUL A. ELLIOTT

Michigan outstripped every previous record in its 11-year oil and gas history during 1936, save one, namely: production of crude.

In new discoveries, both in oil and gas, in new gas open flow, largest gas field, largest gasser, in wildcatting, in number of completions, number of permits to drill and every other phase of development, new high points were reached.

Six new oil fields, five of them indicating production of importance for development during 1937, and two new gas fields, both in the Berea formation, were discovered.

While the oil developments were considered of greater importance for 1937, gas developments featured 1936 with more than 200 successful wells adding nearly 4,000,000,000 feet of open flow and many billions in reserves.

The 338 oil wells completed exceeded the 1935 total of 322, but fell short by nearly 116,364 bbls. of the aggregate initial of 180,204-bbl. record established in 1935. The 1936 initial totaled 63,480 bbls., lowest in several years.

Though Michigan's total crude output for the year was 11,977,063 bbls., or 3,812,842 bbls. less than the 1935 record of 15,789,905 bbls., producers realized about as much as during the previous year, as a one-third higher price of $1.32 a barrel prevailed most of the year.

Since natural gas consumption was more than doubled by the new lines to Lansing and Grand Rapids placed in service during the year, it was anticipated the return for production would be over $18,000,000, compared with $17,000,000 in 1935.

Production by Month

Crude oil production of the state by months and by daily average in 1936 was as follows:

	Month	Dly. av.
January	1,248,550	40,276
February	1,058,505	36,502
March	1,115,257	35,977
April	1,025,850	34,195
May	1,059,961	34,192
June	1,014,714	33,824
July	987,164	31,844
August	940,788	30,348
September	875,520	29,184
October	921,010	29,710
November	847,050	28,235
December	882,694	28,474
Total 1936	11,977,063	32,724
Total 1935	15,789,905	43,260
Decrease	3,812,842	10,536

The Porter-Yost field of Porter and Jasper Townships, Midland County, continued the leading crude producing area in the state with the Crystal-Montcalm field barely maintaining second place as it rapidly declined from flush production of upwards of 20,000 bbls. a day and an estimated open flow at one time exceeding double that amount during its meteoric rise in 1935 following discovery March 28 of that year.

To the 10 recognized producing areas at the close of 1935, really including 14 fields, several of which had been combined for reporting output, were added six new oil fields, namely: Geneva in Midland County: Sherman, Isabella County; Vickeryville and Buckeye, Gladwin County; Clayton, Arenac County, and Dundee, Monroe County. Though none had accounted for large production as the year closed, they were expected to increase the daily output considerably during the next few months.

MICHIGAN

Summary of Wells Completed in 1936

County—	Comp.	Prod.	Dry	Gas
Alcona	1	0	1	0
Alpena	1	0	1	0
Antrim	1	0	1	0
Arenac	8	1,147	5	2
Bay	4	50	2	0
Clare	4	0	4	0
Clinton	6	0	6	0
Crawford	1	0	1	0
Eaton	1	0	1	0
Genessee	3	0	3	0
Gladwin	35	3,934	14	0
Grand Traverse	1	0	1	0
Gratiot	51	0	20	31
Hillsdale	1	0	1	0
Ionia	4	0	4	0
Iosco	1	0	1	0
Isabella	54	7,523	20	1
Kent	5	0	5	0
Lake	2	0	2	0
Lapeer	5	0	5	0
Lenawee	3	15	1	1
Livingston	1	0	1	0
Mason	3	0	3	0
Mecosta	89	0	22	67
Midland	123	23,651	20	0
Monroe	5	127	2	0
Montcalm	246	21,912	57	101
Muskegon	11	0	4	7
Newaygo	2	0	2	0
Ogemaw	85	5,362	6	1
Osceola	1	0	1	0
Roscommon	1	0	1	0
Saginaw	1	88	15	0
Shiawassee	4	9	3	0
St. Clair	3	0	3	0
Tuscola	7	22	5	0
Wayne	1	0	1	1
Total 1936	795	63,840	245	212

Initial open-flow production of gas wells completed in Arenac County, 6,108,000 feet; Gratiot County, 251,980,000 feet; Isabella County, 1,200,000 feet; Livingston County, 450,000 feet; Midland County, 996,991 feet; Montcalm County, 2,712,272,000 feet; Muskegon County, 8,606,000 feet; Ogemaw County, 3,200,000 feet. Total 3,980,507,000 feet.

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	84	10,911	27	7
February	19	1,395	3	8
March	71	7,215	24	11
April	63	4,189	20	18
May	68	4,962	16	21
June	86	6,896	28	31
July	66	2,458	13	26
August	74	3,668	30	13
September	83	4,870	26	29
October	70	8,572	17	28
November	61	4,348	23	10
December	50	4,356	18	10
Total 1936	795	63,840	245	212
Total 1935	593	180,204	168	103
Difference	202	116,364	77	109

Three Minor Fields

Listed during the first six months as a minor discovery was a small producer in Wisner township, Tuscola County, which had been dropped off the production list by September. It was opened by the Smith Petroleum Co. No. 1 Boyce Farm Co. well, NW NW NW section 24-14n-7e, which swabbed 100 bbls. in 24 hours but later quit producing.

Two other small fields in which development had progressed slowly though they were still listed as the year closed were the Geneva, Midland County, area, where five wells were producing about 80 bbls. a day, and the Dundee, Monroe County, field, where three wells were making about 30 bbls. a day combined.

The former was opened in February by Brehm & Hollman Oil Co. in the No. 1 McCann, NW NW SE section 20-15n-2w, a 200-bbl. initial producer in the Traverse, and the latter by the A. V. Oil & Gas Co. No. 1 Roe, SE SE SW section 19-6s-6e, a 10-bbl. initial well in the Trenton. Several Dundee wells subsequently were drilled in the Geneva-Midland area.

Arenac Discovery

The outstanding oil development of 1936 came early in November when McClanahan Oil Co. brought in No. 1 Seignious, SE SW SE section 3-20n-4e, as the discovery well of the Clayton Township, Arenac County, field, making 200 bbls. at 2,484 feet, later increasing to 1,100 bbls. daily and about the middle of December to 1,311 bbls. in 19 hours, giving it a rating of 1,800 bbls. a day. It is a Dundee producer, the largest brought in since the Crystal field was opened.

Two other important developments also came toward the close of the year when Chartiers Oil Co. brought in No. 1 William E. Currie, SW SW section 5-16n-4w, in the northern part of Vernon Township, Isabella County, for an initial of 830 bbls. a day from the Dundee, making 45 gravity oil, and the Pure Oil Co. completed No. 1 J. W. Embrey, NW NW SW section 34-15n-6w, Sherman Township, Isabella County, making 454 bbls. of 47-gravity crude naturally, and was increased to 800 bbls. by acid treatment. Both are considered discovery wells.

Two extension wells, both of which were considered discoveries, were completed in Gladwin County near the Beaverton Township field discovered in 1935. Goll, Graves & Mechling, Inc., brought in No. 1 Oard, SW SW SE section 25-28n-1w, in Buckeye Township, Gladwin County, for 30 bbls. naturally, increased to 126 bbls. by acid treatment in Dundee pay at 3,666 feet.

Daily Crude Oil Co. also brought in a discovery well in No. 1 Weatherby, SW SW SE section 20-12n-9w, Winfield Township, Montcalm County, where a Michigan Stray gasser was struck, but later failed to develop oil production in the Dundee in section 17 about a year before. The Weatherby was good for about 40 bbls. a day. Oil was encountered at 3,311 feet.

Goll, Graves & Mechling No. 1 Crigano, SE SE NE section 36-17n-2w, about 4½ miles south of the original Beaverton Township field but in the same township, made about 25 bbls., indicating either an extension or a new field. It was drilled to 3,890 feet after striking oil 60 feet in the Dundee at 3,850 feet. It later swabbed 130 bbls. per day.

The new Arenac field really was opened, or at least indicated, by T. F. Caldwell, Inc., No. 1 Mutch, NE SE SE section 17-19n-4e, Deep River Township, which was rated good for 20 bbls. in the Dundee topped at 2,770 feet and drilled to oil at 2,948 feet. Great thickness of the formation in which there is oil is considered an important factor.

The most disappointing area was that around the Vickeryville discovery well which first struck oil toward the close of 1935 but was not completed until early 1936, the Jetter Oil Co. and Lima Oil Co. No. 1 Long, in Bushnell Township, about 7 miles southwest of the Crystal field. Tests in nearly every direction failed to produce though several struck showings.

Other wildcat shows in Deerfield Township, Mecosta County, Wisner Township, Tuscola County, Allegan and Gratiot counties failed to develop producers.

Ross & Vale brought in a 65-bbl. Trenton well in No. 1 La Vliet, SW NW SE section 19-6s-6e, in Dundee Township, Monroe County, topping the lower lime at 2,135 feet and striking oil at 2,160 feet.

Gassers

From the first week of the year until the middle of August central Michigan witnessed the greatest gas-drilling program in its history as scores of rigs drilled up the Tri-Townships field in Millbrook-Hinton and Mecosta counties now extending nearly 10 miles diagonally northwest and southeast across the line between Mecosta and Montcalm counties and about 3 miles in width at the widest point.

From 61 producing wells at the outset of the year, the largest of which flowed 20,000,000 feet initially, the open-flow capacity of the field was increased to more than 4,750,000,000 feet and the total number of wells in excess of 200.

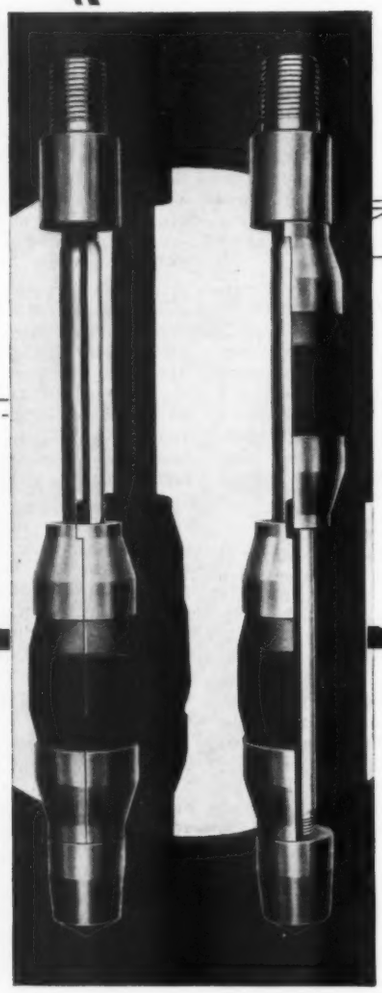
In August Millbrook Oil & Gas Co. No. 1 Verne Wood, C SE SW section 3-12n-7w, in the Belvidere Township, Montcalm County, or southeast section of the field, gauged 112,000,000

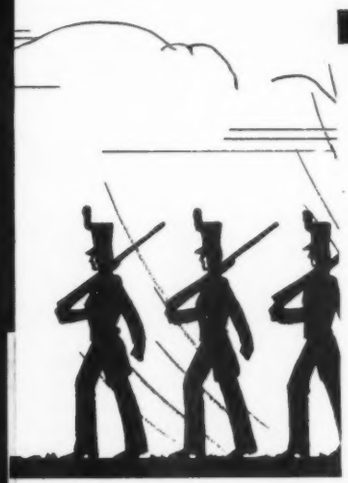
(Continued on Page 113)

MISSION MARCHES ON

SAVING OIL MEN

PRECISION-MINDED OIL MEN APPRECIATE THESE MISSION PRECISION METHODS—Mission keeps step with the fast growing and exacting demands of the great oil industry. In Mission's new plant are many new heat treating furnaces under automatic control to maintain the correct temperature at all times. **Tougher, longer-lasting steel results from this carefully controlled heat treating.**





MISSION VALVELESS SWABS

OFTEN WHEN OTHER SWABS WILL NOT GO IN THE HOLE, THE MISSION VALVELESS SWAB FALLS LIKE A PLUMMET—because—the split-rubber shown in the illustration, allows free by-pass for gas; and often permits Mission Swabs to pass through paraffin that stops other swabs.

SAFEST TO OPERATE—Will not blow out of the hole when pulling load. Will not rise faster than can be spooled. No loose line over derrick floor to catch crew's arms and limbs.

MISSION ROTARY SLIPS

ROLLING DOG PRINCIPLE together with the broad friction face of the dogs, giving more actual contact area than any other slip. Positively eliminates danger of cutting or crushing pipe.

ROUND TRIPS MADE QUICKLY—The greatest cause of delay in handling pipe, namely sticking in bowl, is eliminated as the dogs roll from the pipe as it is pulled. **Fast handling of pipe saves money.**

MISSION MANUFACTURING CO.

HUMBLE ROAD - - - - - - HOUSTON, TEXAS

SOLD THROUGH SUPPLY STORES EVERYWHERE

the WORLD OVER

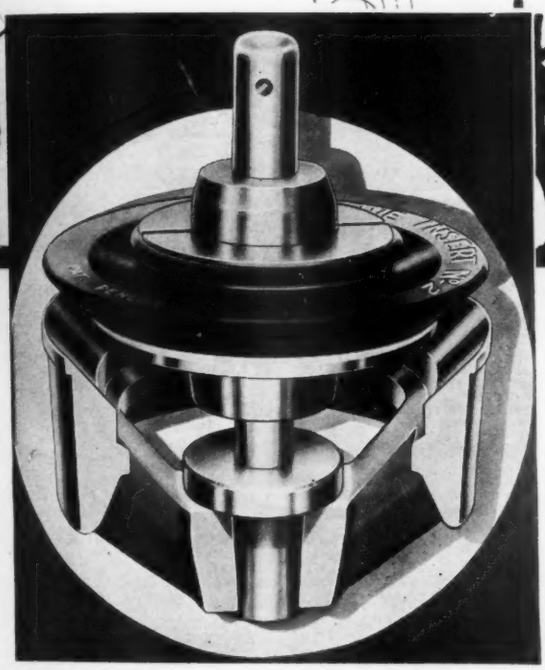
TIME, MONEY and TROUBLE

Skilled operators and high priced equipment turn out various Mission products machined to extreme accuracy **guaranteeing trouble-free performance for the buyer.**

Mission inspectors, using Mission precision gauges and other costly equipment, take great pride in keeping all Mission products within unusually close tolerances. **Adhering rigidly to such a policy saves time and money on the lease.**

IMMEDIATE SERVICE

Just Call and a Mission Man Will Leave for Your Location... At Once



MISSION SLUSH PUMP VALVES

REPLACEABLE, WEAR-TAKING BUSHINGS—Save 50% on valve upkeep. Seats wear longer. Saves time spent pulling seats. Protects pump from wash-outs.

DROP FORGED, HEAT TREATED ALLOY STEEL—Assures longer life. Eliminates breakage and consequent damage to pump. Lowers maintenance costs.

MISSION PISTONS

REPLACEABLE RUBBERS ON A LONG-LASTING BODY —Cuts reconditioning costs in half . . . Cheaper operation . . . Replaceable without removing piston from rod . . . Saves time . . . Saves liners.

DROP FORGED, CHROME NICKEL STEEL BODY—One Piece Construction: Resists any pressure . . . Pistons last longer . . . Designed to fit tapered rod which prevents cut-outs around piston and rod . . . Saves rod and piston costs . . .

Piston can be reworked economically . . . Can be built up or reduced in size.

MISSION MANUFACTURING CO.

HUMBLE ROAD - - - - - - HOUSTON, TEXAS

SOLD THROUGH SUPPLY STORES EVERYWHERE

Annual Review

FLOUR BLUFF MOST IMPORTANT POOL OF 21 DISCOVERIES IN 1936

By GEORGE WEBER

Another record year of drilling activity in Southwest Texas has resulted in the addition of new production in that area to place it in a position of greater importance from the standpoint of Texas crude reserves. For several years an outstanding wildcat territory, Southwest Texas now takes an important place in proven field activity with the opening of several sizable fields in the past two years.

The year 1936 saw the discovery of 21 new oil and gas fields, and the opening of new sands to production in the already proven areas. Important also in the year's development was the extension of proven acreage in several existing fields.

The outstanding discovery of the year was Flour Bluff, located in southwestern Nueces County. In the same county, a development of comparable importance was the opening of deeper oil production in the Saxet field.

The following new fields were opened to production during 1936: McCampbell, San Patricio and Aransas counties; Voss, Bee County; Macdona, Bexar County; Alta Mesa, Brooks County; Colmena, El Mesquite, Loma Vista and Palangana, Duval County; Maetz and Weser, Goliad County; Sullivant, Guadalupe County; Colorado, Jim Hogg County; Bentonville and West Premont, Jim Wells County; Rhode, McMullen County; Flour Bluff and Sullivan, Nueces County; South Cole, Webb County; La Sal Vieja, Willacy County, and Oakville, Live Oak County. Besides Maetz, Rhode and South Cole, other gas areas were opened, but have not yet been developed nor given names.

Lower Gulf Coast

In the lower coastal area, the center of greatest activity was the Saxet field of Nueces County. The discovery of deeper production in Saxet followed a revival in drilling, and incited further work which approached boom proportions. The most important sand opened in Saxet to date is the Frio sand, encountered at 5,800 feet. In April, 1936, the Holliday No. 1 Griffith, a workover of an old gasser, was deepened to 5,844 feet and completed in 28 feet of sand for an initial production of 512 bbls. per day. Completion of this test began a wave of deep drilling in the field which, by the end of 1936 had resulted in the drilling up of most of the 5,800-foot structure and the discovery of other deeper productive sands in the field.

Besides the 5,700-foot Frio sand, a relatively unimportant body producing in a few wells, two other deep sands have been discovered, and drilling is now in progress developing them. The 6,300-foot sand, which produced gas and distillate in the discovery well, has since been extended over a considerable area, and was producing in a number of wells at the end of the year.

In December, 1936, L. Glasscock found a sand in No. 2 Hunter at 6,741 feet with a good show of oil. The test was carried to 6,768 feet, but was plugged back to the 4,400-foot sand for final completion. Closely following that discovery, the Hiawatha Oil Co. cored gas and distillate sand at 6,725 feet in No. 6 Griffith, and completed the well in late December for an estimated 150 bbls. per day in sand at 6,749-59 feet.

A considerable amount of activity centered around Clarkwood townsite, where the 4,400-foot and 4,500-foot sands added a number of producers to the field. These horizons are now producing in all directions from Clarkwood, and particularly to the east where much proven acreage remains to be developed.

Production by pools in the Corpus Christi, or lower Gulf Coast, area is carried elsewhere in the Gulf Coast report.

Flour Bluff Discovery

The greatest part of the Flour Bluff area in Nueces County so far

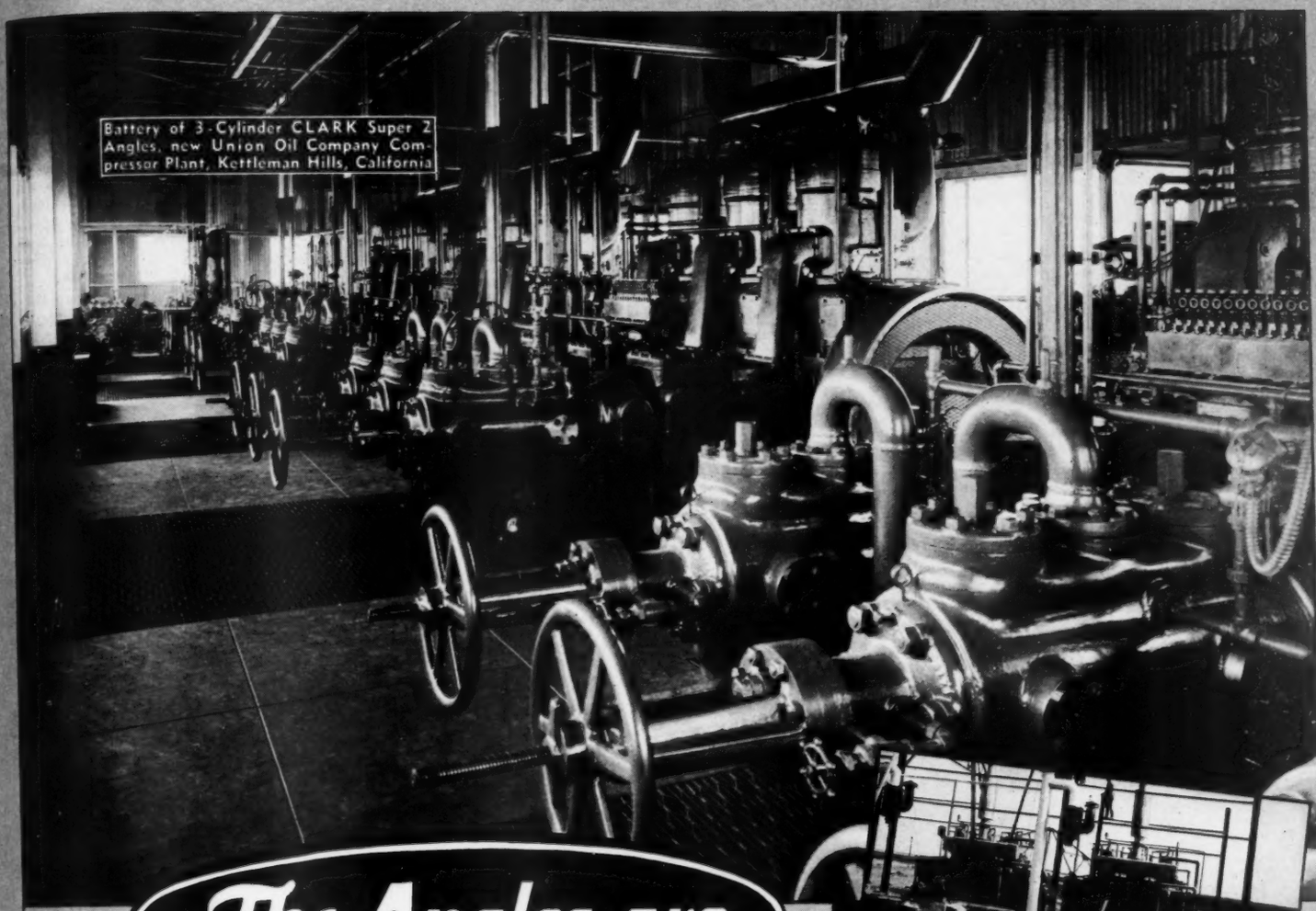
Southwest Texas

SAN ANTONIO DISTRICT

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Tal. 1936 (bbls.)
BRANYON:													
Daily average	42	41	43	44	44	62	64	64	82	96	184	259	
Month	1,305	1,187	1,336	1,319	1,367	1,859	1,984	1,984	2,460	2,976	5,520	5,439	29,730
BRUNER:													
Daily average	4,110	3,948	4,050	3,951	3,868	3,798	3,921	4,139	4,072	4,041	4,276	4,056	
Month	127,413	114,494	125,556	118,532	119,904	113,942	121,551	128,309	122,160	125,271	128,280	125,736	1,471,146
BYERSVILLE:													
Daily average	282	240	265	315	315	307	308	346	369	378	354	323	
Month	8,745	6,963	8,211	9,453	9,767	9,213	9,548	10,726	11,070	11,718	10,620	10,013	116,047
CHAPMAN:													
Daily average	368	371	348	308	315	329	350	340	328	328	328	310	
Month	11,411	10,756	10,782	9,236	9,768	9,874	10,850	10,540	9,840	10,168	9,840	9,610	122,675
DALE:													
Daily average	167	159	153	152	149	254	359	296	290	300	232	189	
Month	5,174	4,613	4,747	4,566	4,614	7,615	11,129	9,176	8,700	9,300	6,960	5,859	82,453
DARST CREEK:													
Daily average	9,131	9,129	9,179	9,254	9,361	9,335	9,311	8,911	7,650	7,624	7,593	7,535	
Month	283,064	264,738	284,545	277,614	290,196	280,056	288,641	276,241	229,500	236,344	227,790	233,585	3,172,314
DOBROWOLSKI:													
Daily average	277	277	277	262	249	245	249	242	226	226	226	221	
Month	8,584	8,037	8,589	7,867	7,714	7,344	7,719	7,502	6,780	7,006	6,780	6,851	90,773
HILBIG:													
Daily average	722	722	744	791	791	712	761	761	641	605	599	605	
Month	22,385	20,934	23,067	23,722	24,526	21,368	23,591	23,591	19,230	18,755	17,970	18,755	257,894
LULING:													
Daily average	5,585	5,466	5,487	5,673	5,685	5,600	5,327	5,725	5,810	5,810	5,810	5,912	
Month	173,138	158,516	170,093	170,192	176,231	168,001	165,137	177,475	174,300	180,110	174,300	183,272	2,070,765
LYTTON SPRINGS:													
Daily average	374	374	373	359	363	342	347	354	356	373	369	349	
Month	11,591	10,842	11,561	10,768	11,257	10,259	10,757	10,974	10,680	11,563	11,070	10,819	132,141
MINERVA:													
Daily average	217	214	213	223	213	225	222	218	222	194	217	215	
Month	6,724	6,209	6,607	6,686	6,606	6,747	6,882	6,758	6,660	6,014	6,510	6,665	78,063
OGDEN:													
Daily average	192	192	188	192	192	185	177	189	204	208	207	205	
Month	5,955	5,565	5,824	5,765	5,950	5,554	5,487	5,859	6,120	6,448	6,210	6,353	71,692
PEARSALL:													
Daily average	280	280	661	733	1,300	1,564	1,232	1,300	1,300	1,300	1,300	692	
Month	8,677	8,124	20,496	21,985	40,302	46,916	38,192	40,300	39,000	40,300	39,000	21,452	364,744
SOMERSET:													
Daily average	670	670	699	717	680	679	750	705	641	650	650	657	
Month	20,773	19,426	21,664	21,516	21,082	20,375	23,250	21,855	19,230	20,150	19,500	20,367	249,388
THRALL:													
Daily average	47	47	47	47	47	46	47	47	47	48	50	52	
Month	1,454	1,365	1,454	1,417	1,453	1,386	1,457	1,457	1,410	1,488	1,500	1,612	17,653
VON ORMY:													
Daily average	70	82	86	94	94	89	108	116	116	116	120	110	
Month	2,173	2,376	2,668	2,813	2,918	2,664	3,348	3,596	3,480	3,596	3,600	3,410	36,842
ZOBOROSKI:													
Daily average	10	5	40	17	33	42	163	158	117	160	208	281	
Month	313	149	1,241	507	1,022	1,256	5,053	4,898	3,510	4,960	6,240	8,711	37,060
MISCELLANEOUS:*													
Daily average	470	.....	408	376	374	384	390	395	414	413	416	423	
Month	14,555	12,933	12,650	11,282	11,586	11,601	12,090	12,262	12,420	12,802	12,480	13,113	149,774
Total 1936	713,434	657,227	721,091	705,240	746,263	726,030	746,666	753,503	686,550	708,969	694,170	691,624	8,550,797
Total 1935	709,962	648,564	728,469	714,750	717,866	709,410	719,789	725,741	685,290	699,267	693,000	697,066	8,449,174

*Miscellaneous pools and their total production in 1936 were: Alta Vista, 1,641 bbls.; Buchanan, 12,657 bbls.; Carroll, 10,056 bbls.; Cedar Creek, 17,710 bbls.; Chicon Lake, 6,520 bbls.; Cooksey, 2,565 bbls.; Dunlap, 20,628 bbls.; Gas Ridge, 2,370 bbls.; Joliet, 2,194 bbls.; Kimbro, 403 bbls.; Larremore, 15,903 bbls.; Lone Oak, 305 bbls.; Mannford, 11,950 bbls.; Manda, 6,560 bbls.; Medina, 3,181 bbls.; Schimmel-Batts, 158 bbls.; Staples, 778 bbls.; Yost, 13,868 bbls.; Yturri, 22,219 bbls. Total, 149,774 bbls.

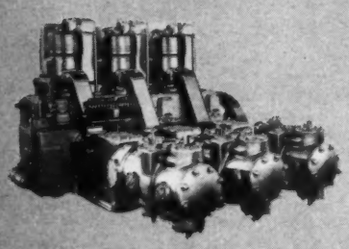


Battery of 3-Cylinder CLARK Super 2 Angles, new Union Oil Company Compressor Plant, Kettleman Hills, California

The Angles are COMING!

Equal power and efficiency—but *less floor space* and *lower installation cost!* These are the unanswerable arguments which have instantly appealed to users of compressors throughout the Oil Industry. The "Angles" are coming and coming fast!

Note these features of the CLARK Super-2-Angle: (1) Reduced foundation requirements and floor space; (2) CLARK Super 2 Cycle simplicity; (3) CLARK Fuel Injection; (4) Low fuel consumption and maintenance; (5) Minimum number of parts—no valves, no cam shaft, fewer connecting rods and bearings; (6) Forced feed lubrication.



It will pay you to investigate fully.

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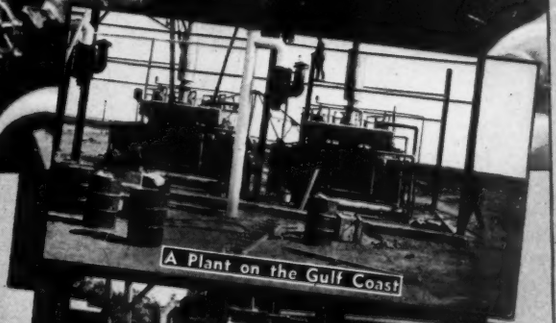
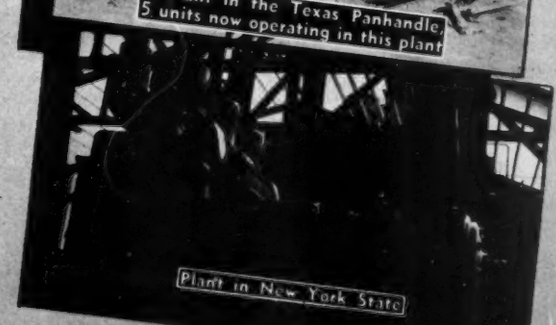


A Plant on the Gulf Coast

Plant in the Montebello Field, California

A Plant in the Texas Panhandle, 5 units now operating in this plant



Plant in New York State

proven for production is held jointly by the Humble Oil & Refining Co., Barnsdall Oil Co. and M. F. Hurlburt interests. Flour Bluff is considered to be the most important discovery in Southwest Texas in 1936, and many authorities place it as one of the most important in Texas during the year. The sand is in the Frio formation, corresponding to that producing in the 5,800-foot Saxet, the Plymouth and other good fields of the area. The thickness of the sand, coupled with the probable extent of the structure as indicated by subsurface study lead experts to place the possible reserves in the field at between 40,000,000 and 50,000,000 bbls.

The sand in the field, averaging around 50 feet in thickness, is encountered at 6,600 feet. Discovery well, M. F. Hurlburt No. 1 Phillips, was begun in March and completed in July. It produced 23 bbls. per hour of 43 gravity oil, through a three-sixteenths inch choke.

Jim Wells County Discovery

The Bentonville field of eastern Jim Wells County was opened in April by Texon Drilling Co. and Lucey, when No. 1 Coopwood was completed in sand at 5,380-90 feet for 244 bbls. per day. Subsequent drilling in the field resulted in few new oil producers, with many of the tests after failing to find the 5,400-foot sand productive, plugging back to shallower sand at 4,000 feet for completion as gassers.

Oil in Aransas

The first oil production to be found in Aransas County was discovered late in July when the Buckingham Oil Co. completed No. 1 McCampbell near the San Patricio County line, for a good producer in sand at 6,554-60 feet.

Two new producing areas were opened in Nueces County, neither of which had seen further drilling up to the close of 1936. One, opened the first day of the year by Sherman Nelson on the Buckholt tract, 1½ miles southeast of Saxet production, made a small amount of oil at 3,170 feet, and was given the name Nelson. Another area was opened in October by Texon Drilling Co., 4½ miles south of Agua Dulce. The No. 1 Austin, discovery well of the field, is producing 98 bbls. of crude per day at total depth of 5,780 feet.

Salt Lake Area

In Willacy County, near the extreme southern tip of Texas, Shell

Southwest Texas (Continued)

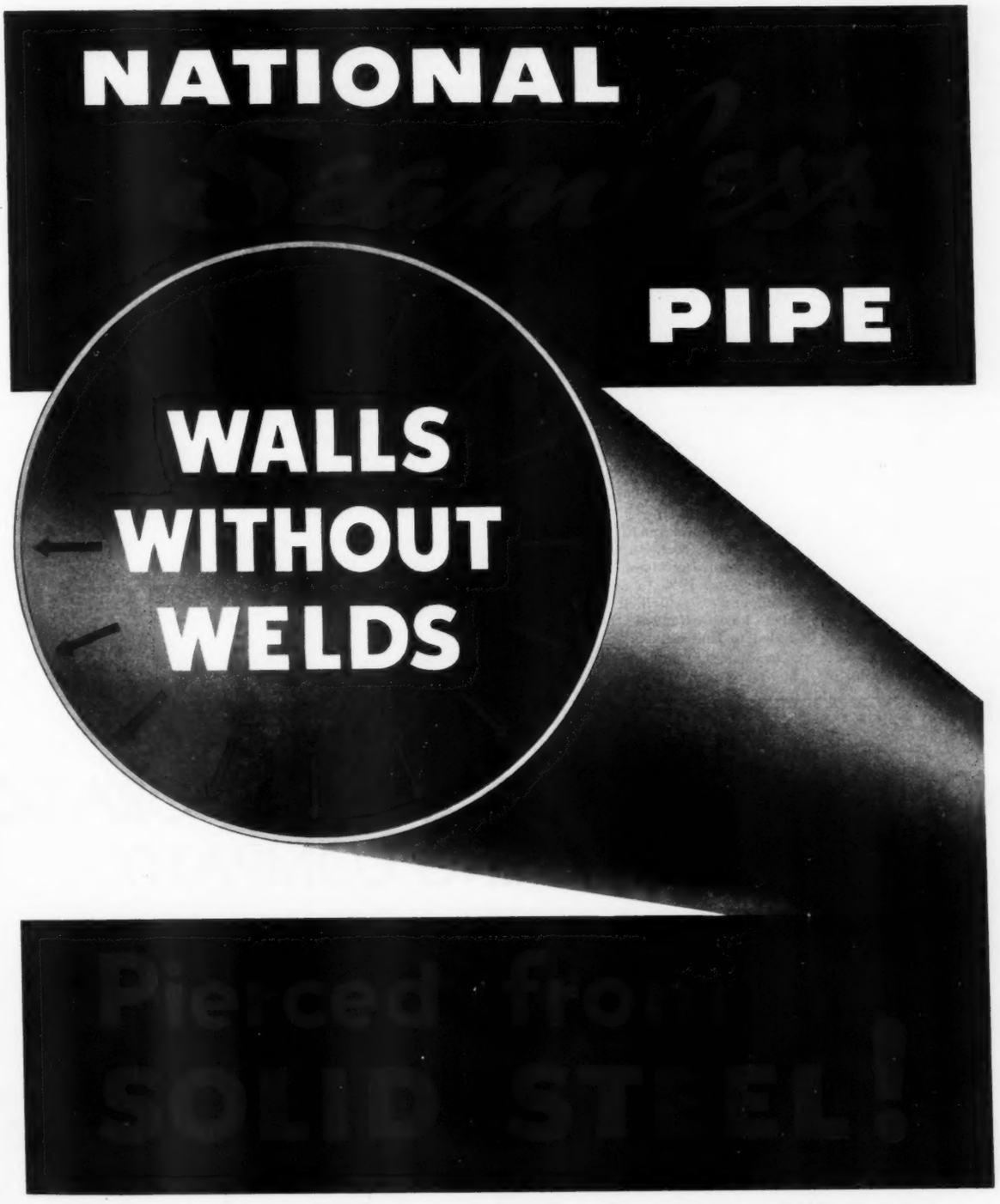
LAREDO DISTRICT

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
ALBERCAS:													
Daily average	100	97	102	95	86	89	93	84	72	67	73	69	
Month	3,103	2,815	3,165	2,941	2,663	2,671	2,883	2,604	2,160	2,077	2,190	2,139	31,611
AVIATOR:													
Daily average	428	404	416	432	418	421	403	401	407	394	373	387	
Month	13,265	11,719	12,899	12,962	12,954	12,629	12,493	12,431	12,210	12,214	11,190	11,997	146,962
COLE:													
Daily average	5,979	6,041	6,045	6,177	6,241	5,254	5,436	5,398	5,509	5,703	5,706	5,605	
Month	185,344	175,185	187,392	185,306	193,467	157,624	168,516	167,338	165,270	176,793	171,180	173,755	2,107,170
COMITAS:													
Daily average	76	62	67	54	85	432	269	629	1,561	2,000	2,263	2,251	
Month	2,353	1,796	2,074	1,625	2,633	12,956	8,339	19,499	46,830	62,000	67,890	69,781	297,776
CUEVITAS:													
Daily average	371	440	401	409	411	403	427	456	455	451	297	450	
Month	11,504	12,762	12,434	12,265	12,743	12,095	13,237	14,136	13,650	13,981	8,910	13,950	151,667
DRISCOLL:													
Daily average	315	346	389	384	358	339	379	369	398	477	440	455	
Month	9,762	10,031	12,054	11,526	11,095	10,165	11,749	11,439	11,940	14,787	13,200	14,150	141,898
EAGLE HILL:													
Daily average	435	396	412	313	381	356	380	392	378	303	313	310	
Month	13,488	11,487	12,777	9,384	11,814	10,686	11,780	12,152	11,340	9,393	9,390	9,610	133,301
ESCOBAS:													
Daily average	1,780	1,861	1,923	1,916	1,897	1,853	1,764	1,848	1,939	1,937	1,954	2,060	
Month	55,183	53,964	59,617	57,487	58,804	55,584	54,684	57,288	58,170	60,047	58,620	63,860	693,304
GOVERNMENT WELLS:													
Daily average	16,786	16,628	16,558	17,038	16,741	16,534	15,975	15,645	16,224	14,687	14,530	14,495	
Month	520,363	482,217	513,294	511,133	519,036	496,027	495,225	484,995	486,720	455,297	435,900	449,345	5,819,552
KOHLER:													
Daily average	104	91	100	93	92	94	11	102	94	95	110	103	
Month	3,227	2,638	3,102	2,781	2,855	2,829	341	3,162	2,820	2,945	3,300	3,193	33,193
HOFFMAN:													
Daily average	89	132	132	240	506	1,062	1,052	1,100	1,179	1,117	948	996	
Month	2,756	3,829	4,090	7,209	15,683	31,852	32,162	34,100	35,370	34,627	28,440	30,876	260,994
JACOB:													
Daily average	539	472	596	597	570	434	822	822	781	706	759	714	
Month	16,706	13,683	18,473	17,911	17,674	13,011	25,482	25,482	23,430	21,886	22,770	22,134	239,642
LOMA ALTA:													
Daily average	70	62	84	96	62	76	85	78	84	85	62	99	
Month	2,173	1,794	2,601	2,882	1,920	2,279	2,635	2,418	2,520	2,635	1,860	3,069	28,786
LOMA NOVIA:													
Daily average	6,883	8,309	10,412	12,271	14,072	14,535	12,949	13,838	14,489	14,458	14,192	14,961	
Month	213,438	240,966	322,775	368,128	436,234	436,052	410,419	428,978	434,670	448,198	425,760	463,791	4,629,409
LOPEZ:													
Daily average	1,084	1,609	2,396	3,044	3,334	3,419	3,419	3,922	4,649	5,294	5,891	5,920	
Month	33,601	46,665	72,274	91,317	103,351	102,573	105,989	121,582	139,470	164,114	176,730	183,520	1,343,186
LOS OLMOS:													
Daily average	154	142	140	143	160	163	152	154	143	160	163	141	
Month	4,771	4,114	4,342	4,293	4,963	4,888	4,712	4,774	4,320	4,433	3,900	4,371	53,881
McMULLEN:													
Daily average	146	144	143	162	178	175	135	135	159	157	169	165	
Month	4,529	4,173	4,435	4,864	5,519	5,247	4,185	4,185	5,770	4,867	5,070	5,115	57,959
MERCEDES:													
Daily average	243	244	153	160	168	154	120	0	108	106	105	106	
Month	7,530	7,079	4,747	4,796	4,897	4,624	3,720	0	3,240	3,286	3,150	3,286	50,355
MIRANDO VALLEY:													
Daily average	31	25	36	34	24	25	21	30	31	24	23	24	
Month	964	727	1,112	1,025	741	746	651	930	930	744	690	744	10,004
MOCA:													
Daily average	647	632	591	431	292	295	362	378	365	347	331	300	
Month	20,054	18,326	18,326	12,625	9,055	8,855	11,222	11,718	10,950	10,757	9,930	9,300	151,118
PIEDRA LUMBRE:													
Daily average	79	90	203	388	529	731	628	706	761	723	654	715	
Month	2,446	2,613	6,298	11,634	16,395	21,936	19,468	21,886	22,830	22,413	19,620	22,165	169,704
RANDADO:													
Daily average	328	325	368	358	338	369	328	316	294	305	307	318	
Month	10,171	9,422	11,434	10,747	10,474	11,064	10,168	9,796	8,820	9,455	9,210	9,858	120,619
RIO GRANDE CITY:													
Daily average	260	214	214	199	185	186	258	281	281	282	303	335	
Month	8,063	6,204	6,631	5,963	5,739	5,587	7,998	8,711	8,430	8,742	9,090	10,385	91,543
SAMFORDYCE:													
Daily average	4,084	4,218	5,142	5,398	5,719	5,683	4,946	5,037	5,089	5,180	4,370	5,088	
Month	126,607	122,326	159,406	161,932	177,286	170,498	153,326	156,147	152,670	160,580	131,100	157,728	1,829,606
SARNOSA:													
Daily average	878	883	967	967	922	925	892	900	873	819	793	850	
Month	27,215	25,603	29,973	29,019	28,585	27,742	27,652	27,900	26,190	25,389	23,790	26,350	325,409
SCHOTT:													
Daily average	356	350	362	375	365	387	367	369	355	347	356	344	
Month	11,039	10,156	11,221	11,251	11,319	11,605	11,377	11,439	10,650	10,757	10,680	10,664	132,158
SEVEN SISTERS:													
Daily average	1,676	2,352	3,312	4,350	5,496	5,534	5,661	6,269	6,837	7,224	7,396	7,945	
Month	51,953	68,202	102,670	130,491	170,373	166,029	175,491	194,339	205,110	223,944	221,880	246,295	1,956,777
MISCELLANEOUS:*													
Daily average	195	.....	299	208	165	156	254	338	464	508	377	530	317
Month	6,050	7,053	9,268	6,253	5,125	4,666	7,874	10,478	13,920	15,748	11,310	16,430	114,174
Total 1936	1,367,658	1,357,548	1,610,884	1,689,750	1,853,397	1,802,520	1,784,778	1,859,907	1,890,400	1,982,109	1,896,750	2,037,861	21,133,962
Total 1935	949,747	862,176	1,029,603	1,047,038	1,091,634	1,062,030	1,079,952	1,054,279	1,093,530	1,169,568	1,255,680	1,297,567	12,992,786
SOUTHWEST TEXAS ALL FIELDS:													
Total 1936	2,081,092	2,014,775	2,331,975	2,394,990	2,599,669	2,528,550	2,531,444	2,613,410	2,576,950	2,691,078	2,590,920	2,729,485	29,684,329
Total 1935	1,659,709	1,510,740	1,758,072	1,761,780	1,809,500	1,771,440	1,799,741	1,780,020	1,778,820	1,868,835	1,948,680	1,994,633	21,441,970
Total 1934	1,365,093	1,222,087	1,383,113	1,456,056	1,533,242	1,507,708	1,403,571	1,772,137	1,719,150	1,743,377	1,802,639	1,675,953	18,586,126
Total 1933	1,686,944	1,529,203	1,760,187	1,705,575	1,791,634	1,741,484	1,799,517	1,826,074	1,728,639	1,796,558	1,468,819	1,490,636	20,325,270
Total 1932	1,821,552	1,836,872	1,883,784	1,730,681	1,971,657	1,849,784	1,896,160	1,884,996	1,858,458	1,903,039	1,795,298	1,712,103	22,144,384

NOTE: A number of pools formerly carried in Southwest Texas were placed in "Lower Gulf Coast" in 1934 and subsequent production tables.

*Miscellaneous pools and their total production in 1936 were as follows: Alworth, 816 bbls.; Barbacoas, 4,897 bbls.; Carolina-Texas, 4,591 bbls.; Charco Redondo, 3,850 bbls.; Charamousca, 6,820 bbls.; Colmena, 13,343 bbls.; Colorado, 5,447 bbls.; El Mesquite, 976 bbls.; Engleman, 246 bbls.; Henne-Winch-Farris, 1,613 bbls.; Hords Creek, 15,451 bbls.; Laurel, 12,627 bbls.; Loma Vista, 5,425 bbls.; Palangana, 1,260 bbls.; Peters, 24,394 bbls.; Piedras Pintas, 1,157 bbls.; Premont, 1,625 bbls.; Roma, 890 bbls.; S.R.C., 6,236 bbls.; Wood, 2,511 bbls. Total, 114,174 bbls.



NATIONAL TUBE COMPANY

PITTSBURGH, PA.

United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

Petroleum Corp., which holds considerable acreage under lease in the area, completed No. 1 Yturria Land & Livestock Co. in Share 64 of the Carricitos grant. In September the well flowed 323 bbls. per day from sand at 7,662 feet. Located near the salt lakes in the northwestern section of the county, the field takes its name, La Sal Vieja, from one of them.

A new discovery in the Plymouth field, San Patricio County, the the opening of production on the northern edge, in a deep sand, which produces in the southern section of the field as the Magnolia sand.

Taft, a small pool located south of Plymouth, saw the addition of two new producing horizons and considerable extension during the year. Both new sands lie above the original discovery sand. The Humble Oil & Refining Co. opened both of them, the 3,900-foot Catahoula sand, and an intermediate body at 4,375 feet. Production is coming mainly from the 3,900-foot and the original 4,900-foot horizons.

Lopez Greatly Extended

The greatest development of new production in the Laredo district came as a result of field extension rather than discovery of new production. Outstanding among the fields which were enlarged by outpost drilling and semiwildcatting were Lopez of Duval and Webb counties, and Hoffman and Seven Sisters of Duval County.

Several discoveries were made in Duval County, which at the end of the year had not been sufficiently developed to show any great importance. A west edge test in Government Wells was completed for an oil well in the Loma Novia sand. In Piedra Lumbre, a third gas horizon was opened at 1,323 feet. Kohler was opened for its first oil production in the Mirando sand at 2,642 feet.

In the same county four new producing areas were discovered but none of them has seen much subsequent drilling. The Colmena field was opened in August by the Conservative Oil Co. on the Duval County Ranch, the discovery well making about 100 bbls. per day from sand at 1,591 feet. El Mesquite, opened in July by Rogers and Rogers is still a one-well field, located in southeastern Duval County. The Loma Vista field, lying east of Loma Novia, was discovered in February by the Santa Clara Oil Co. The Palangana dome, in Duval County, was opened as a field in September by Frank Gravis, when No. 1 Schallert was completed for a good producer.

Neuhaus and Meek opened the Colorado field in Jim Hogg County in August. The Alta Mesa Prospect was brought into production when the California Co. completed No. 1 Garcia in August, and a second producer was added to the field at the close of the year. In McMullen County the old Oakville gas field became an oil field late in December, by completion of the Ohio Fuel Supply Co. No. 1 Rosebrock for a producer after it blew out and ran wild for a short time at 2,808 feet. In the same county Magnolia Petroleum Co. discovered gas in Survey 86 to open the Rhode field, and tests drilled since in that area have extended the field, but failed to find oil.

One oil field and one gas field were discovered in Goliad County, but neither has been further developed. The Weser oil field was opened by California Co. No. 1 Langrebe, making 81 bbls. per day at 4,912 feet. Maetz, a gas area, was discovered by Felmont Oil Co. In the same county a new sand and extension was added to the North Pettus field by Diamond Halff Oil Co. on the Gillette tract in January, and drilling during the year has resulted in several producers in the new proven area. Bee County's lone discovery during the year was the Voss field, opened by R. B. Swiger in June and extended slightly by additional tests during the last half of the year.

New Pearsall Sands

Outstanding development in the Balcones Fault Zone during the year was the extension and opening of new sands in the Pearsall field of Frio County. In early January, the Amerada Petroleum Corp., sole operator of the field, completed No. 1 Michael, a 2,400-bbl. well, opening new production in the Austin chalk at 5,272 feet and extending the field one-half mile to the north. The Austin chalk horizon was later extended 1½ miles to the southwest by completion of No. 6 Halff and Oppenheimer. In February, Amerada completed No. 1 Cory and McWilliams, also in the Austin chalk for a 2¾-mile extension of the field further to the southwest.

Summary of Completions in 1936

Field—	Comp.	Prod.	Dry	Gas
Agua Dulce	7	70	3	3
Alta Mesa	1	75	0	0
Alta Verde	9	100	5	2
Armagosa	1	0	0	1
Aviator	1	50	0	0
Baldwin	3	670	2	0
Bateman	1	50	0	0
Bentonville	17	1,195	3	7
Blas Uribe	2	0	2	0
Branyon	14	1,805	0	0
Buchanan	1	10	0	0
Caesar	6	250	3	0
Carolina-Texas	3	10	2	0
Carroll	1	75	0	0
Charamousca	2	0	2	0
Charco Redondo	1	0	1	0
Chicon Lake	2	9	0	0
Clara Driscoll	13	2,385	3	2
Clark	10	1,075	2	0
Cole	8	250	4	2
Colmena	5	115	2	1
Colorado	2	100	1	0
Cuellar	2	0	2	0
Cuevitas	1	0	1	0
Dale	5	220	3	0
Darst Creek	2	300	0	0
Dirks	30	11,980	1	0
Driscoll	5	1,175	0	0
Eagle Hill	2	90	1	0
Eckert	1	10	0	0
El Mesquite	3	0	3	0
Escobas	39	2,010	10	0
Flour Bluff	13	2,438	0	0
Foley	4	320	1	0
Fort Merrill	1	240	0	0
Govt. Wells	30	3,105	3	0
Guerra	3	410	1	0
Hagist	1	0	1	0
Haynes	108	4,050	7	1
Hoffman	59	9,560	11	0
Holzmark	1	0	1	0
Hondo	1	0	1	0
Hords Creek	1	0	1	0
Jacob	42	1,528	10	2
King	1	0	1	0
Kingsville	1	15	0	0
Kohler	4	330	2	1
Labbe	5	0	4	1
La Blanca	1	0	1	0
La Sal Vieja	1	230	0	0
Laurel	1	0	1	0
Loma Alta	1	0	1	0
Loma Novia	464	152,825	10	9
Loma Vista	6	100	4	1
Lopez	250	95,971	9	9
Lucas	5	0	4	1
Lytton Springs	2	110	0	0
Maetz	2	0	1	1
Margo	5	0	3	2
McCampbell	3	820	0	0
McNeill	1	0	1	0
Mercedes	5	847	2	0
N. Pettus	38	5,695	6	1
Oakville	2	50	0	1
O'Hern	118	31,740	9	2
Palangana	1	1,200	0	0
Pearsall	14	38,350	1	0
Peters	13	1,415	4	2
Pettus	4	280	1	1
Piedra Pintas	2	0	2	0
Piedras Lumbre	31	5,085	1	3
Plummer	4	350	3	0
Plymouth	75	15,400	7	0
Ray	8	425	4	0
Rhode	6	0	3	3
Rio Grande City	16	360	6	0
Salt Flat	4	135	0	0
Samfordyce	73	5,580	9	4
Sandia	1	0	1	0

ANDERSON-PRICHARD OIL CORPORATION
COL-TEX REFINING COMPANY

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Refineries
Cyril, Oklahoma, located on Frisco Ry.—Colorado, Texas, located on T. & P. Ry.

PRODUCERS—REFINERS—MARKETERS

Fine volatile high anti-knock gasolines—Industrial and Technical Naphthas—Kerosenes—Distillates—Furnace Oils—Gas Oils—Fuel Oils—Road Oils—Cutbacks—Asphalts—Roofing Materials.

San Diego	1	0	0	1
Santo Domingo	2	0	2	1
Sarnosa	1	0	1	0
Saxet	274	55,070	18	3
Saxet Heights	226	48,855	11	3
Seven Sisters	333	135,804	25	3
Somerset	1	50	0	0
Taft	32	7,850	3	0
Taylor	1	5	0	0
Von Ormy	5	10	0	0
Voss	13	795	6	0
Walton	2	160	0	0
Weser	1	300	0	0
West Premont	1	125	0	0
West Tuleta	3	200	2	0
White Point	1	0	1	0
Woods	1	0	0	1
Zobrowlski	6	638	0	1
Miscellaneous	314	40	305	7
Total	2,851	652,945	568	98

Summary by Months

Month—	Comp.	Prod.	Dry	Gas
January	152	36,912	30	3
February	176	52,395	39	6
March	276	100,840	56	6
April	254	59,330	46	12
May	290	85,815	49	12
June	247	56,270	48	8
July	210	39,790	51	8
August	209	38,450	29	13
September	277	52,945	43	7
October	259	44,083	58	12
November	285	46,575	62	6
December	216	39,540	57	5
Total 1936	2,851	652,945	568	98
Total 1935	1,611	309,996	566	77
Difference	1,240	342,949	2	21

Michigan Review

(Continued from Page 105)

feet daily to set a new record for gassers east of the Mississippi.

As work progressed many of the earlier wells, drilled less than 10 feet into the Michigan Stray sands at about 1,300 feet, were deepened to 25 or 35 feet in the pay, the ultimate thickness of the pay in the heart of the field.

New Gas Fields

The new Muskegon gas field, about 15 miles southeast of the old Muskegon oil field, was opened by the Muskegon Development Co., a concern associated with the Muskegon Oil Corp., which opened the Muskegon oil field December 15, 1927. The Development company's No. 1 Doll Estate, SW NE SE section 8-9n-14w, Ravenna Township, flowed 450,000 feet initially and was increased to 1,108,000 feet with a shot at a total depth of 1,212 feet, the drill penetrating 18 feet of pay from 1,190 to 1,208 feet. The discovery was made the latter part of August.

McClanahan Oil Co. struck a Berea flow of 5,108,000 feet daily at 1,133 feet in No. 1 Buffalo Land Co., SE NE NW section 10-20n-4e, Clayton Township, Arenac County, a few days later assuring another gas field.

Louisiana-Arkansas

(Continued from Page 102)

Glen Rose producing area at the 5,025-foot level.

Panola County

About 6 miles northeast of Carthage, A. C. Glassell and others opened a gas-distillate pool in their No. 1 Forst, Mary Potts Survey, Panola County, from the Glen Rose horizon at 5,600 feet, flowing about 10,000,000 feet on initial test.

EAST TEXAS (Border Counties)

Summary of Completions in 1936

County—	Comp.	Prod.	Dry	Gas*
Bowie	4	0	4	0
Cass	164	106,933	4	1
Harrison	10	60	5	3
Panola	8	0	4	4
Sabine	1	0	1	0
Shelby	7	10	4	2
Total 1936	194	107,003	22	10

*Gas production: Panola County, 15,500,000 feet; Harrison, 11,684,000 feet; Cass, 8,800,000 feet; Shelby, 65,000,000 feet.

Summary by Months for 1936

	Comp.	Prod.	Dry	Gas
January	0	0	0	0
February	2	1,728	0	1
March	5	4,552	3	0
April	6	954	3	1
May	11	4,210	2	0
June	7	5,712	1	1
July	12	6,288	0	1
August	11	10,356	0	0
September	23	13,901	2	1
October	30	18,308	5	1
November	42	20,879	4	2
December	45	19,115	2	2
Total 1936	194	107,003	22	10
Total 1935	12	1,200	10	1
Difference	182	105,803	12	9

MISSISSIPPI

Seventeen wells were completed during the year, 13 of which were dry. Four gas wells, having an aggregate daily volume of 145,000,000 feet were completed in the Jackson gas field on state-owned land.

MISSISSIPPI

Summary of Completions in 1936

County—	Comp.	Prod	Dry	Gas
Smith	1	0	1	0
Hinds	5	0	1	4
Rankin	4	0	4	0
Warren	2	0	2	0
Wilkinson	3	0	3	0
Winston	1	0	1	0
Perry	1	0	1	0
Total 1936	17	0	13	4

Gas production: Hinds County, 145,000,000 feet.

Summary by Months for 1936

	Comp.	Prod.	Dry	Gas
January	1	0	1	0
February	1	0	1	0
March	2	0	2	0
April	1	0	1	0
May	3	0	3	0
June	1	0	1	0
July	0	0	0	0
August	1	0	1	0
September	1	0	1	0
October	4	0	0	4
November	1	0	1	0
December	1	0	1	0
Total 1936	17	0	13	4
Total 1935	16	0	13	3
Difference	1	0	0	1

ALABAMA

Four dry holes were drilled in Alabama in 1936, one each in Baldwin, Houston, Lamar and Mobile County.

ALABAMA

Summary of Completions in 1936

County—	Comp.	Prod	Dry	Gas
Baldwin	1	0	1	0
Houston	1	0	1	0
Lamar	1	0	1	0
Mobile	1	0	1	0
Total 1936	4	0	4	0

Summary by Months for 1936

	Comp.	Prod	Dry	Gas
January	2	0	2	0
March	2	0	2	0
Total 1936	4	0	4	0
Total 1935	4	0	4	0
Difference	0	0	0	0

FLORIDA

One dry hole was drilled during 1936, with two in the process of drilling at the close of the year.

FLORIDA

Summary of Completions in 1936

County—	Comp.	Prod	Dry	Gas
Jackson	1	0	1	0
Total 1936	1	0	1	0

Summary by Months for 1936

	Comp.	Prod.	Dry	Gas
July	1	0	1	0
Total 1936	1	0	1	0
Total 1935	0	0	0	0
Difference	1	0	1	0

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Annual Review

WEST TEXAS WILDCATTERS UNCOVER SIX POOLS IN FIVE COUNTIES

By L. E. BREDBERG

The West Texas or Permian Basin district is entering 1937 as the most active in the state, especially from a wildcat standpoint.

The year 1935 saw West Texas coming back as a wildcatting territory, but 1936 witnessed an even greater campaign of exploration. Four isolated areas were opened to production in as many counties, located far to the north of the nearest production areas.

Discoveries

The discoveries in Cochran, Dawson, Yoakum and Gaines counties may not prove of major importance in a producing sense, but they cannot be discounted as they have opened up new counties to production, and many more tests will be drilled as a result of these strikes. The four counties are north of the producing fields in the district, the Cochran County pool at least 75 miles from production in Andrews County, which until this year contained the northernmost production in the Permian Basin.

Yoakum Discovery

The discovery which precipitated a big lease and a considerable wildcat drilling play in the northern sector in 1936 was made in the latter part of 1935 on the Bennett ranch in southeastern Yoakum County by C. J. (Red) Davisson and others (Cascade Oil Corp. now). The well topped the pay at 5,094-96 feet and 5,215-60 feet and was bottomed at 5,282 feet, but plugged back to 5,264 feet to shut off water and shoot. It flowed 235 bbls. in 24 hours early in 1936.

Cochran Discovery

The same group that drilled this discovery, together with the Devonian Oil Co. went farther north, approximately 27 miles, into the southeastern corner of Cochran County and opened up a pool on the E. B. Duggan ranch, in Labour 13, League 55, Oldham County School Lands Survey. This well topped the pay at 5,020 feet and was drilled to 5,094 feet, but also plugged back before shooting, to 5,068 feet. It flowed 168 bbls. in 24 hours through 2-inch tubing, on a railroad commission test, thereby opening the first production for that county.

Two Gaines Discoveries

Gaines County, opened to production in 1936, had two new pools. Landreth Production Co. brought in a small well on the W. H. Kirk ranch in section 22, Block 21-A, P.S.L. Survey, about 9 miles southwest of Seminole. The well topped the pay at 4,538 feet and was bottomed at 4,870 feet, plugging back to 4,855 feet to shut off water and shoot. It made only 50 bbls. of oil and 15 bbls. of water per day after shooting, the oil testing nearly 28 degrees gravity. Two dry holes have been drilled to the west, and one north, of this discovery with another drilling nearer to it at this writing.

The second producing area in Gaines was opened by Amerada Petroleum Corp. and others who drilled a southwest offset oil producer to a junked gasser abandoned in 1935 by Adams and others on the Averitt ranch, in section 228, Block G, G.W.T. Railway Survey, 3 miles northwest of Seminole. This discovery started at 200 bbls. per day, with 250,000 feet of gas, through 1-inch tubing choke, registering 2,025 pounds pressure on the tubing. It is standing at total depth of 5,029 feet, has been acidized twice and may be deepened in an effort to increase its production. Several major companies hold offset and nearby leases and this pool will no doubt see considerable development during the year.

Dawson Discovery

The Dawson County discovery of Ray Albaugh, Fred Turner and others on the John Robinson ranch, in section 46, Block M, E.L.R.R. Survey, in the northwest corner of the county, has not created much interest so far, pumping intermittantly and at the rate of 15 bbls. of oil and 3 bbls. of water in six hours from pay logged at 4,967-69 feet and 4,979-82 feet. Bottom of the hole is 5,038 feet.

Goldsmith Largest Discovery

The Goldsmith field, in Ector County, opened in section 10, Block 44, 1s, T.&P. Survey, by the Gulf Oil Corp. the latter part of 1935, but the discovery well was not completed until the fore part of January 1936. It will no doubt prove the largest pool found in the past two years. This field is proven for at least 2 miles in width and 7 miles in length, from northeast to southwest, with possibly 5 more miles to be added to it, or in the neighborhood of 10 more sections. Three wells are now drilling on intervening acreage between this field and the two Cummins areas to the north, appearing as wells which will link the three areas into one huge field. The wells in the main part of the Goldsmith field are big ones, some of them rated good for as high as 10,000 bbls. per day.

William Dunning, Jr., opened the Cummins area about 4 miles northwest of the Goldsmith discovery this year when he drilled in No. 1 Cummins in section 33, Block 45, 1n, T.&P.

West Texas

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
OGDEN, ANDREWS:													
Daily average	833	966	1,062	1,157	1,149	1,244	1,202	1,181	1,074	1,026	814	1,111	
Month	25,823	28,014	32,922	34,710	35,619	37,320	37,262	36,611	32,220	31,806	24,420	34,441	391,168
CHURCH-FIELDS and McELROY, CRANE:													
Daily average	10,412	11,694	12,415	12,726	11,825	11,466	12,558	12,915	12,212	12,791	11,668	13,109	
Month	322,772	339,126	384,865	381,780	366,575	343,980	389,298	400,365	366,360	396,521	350,040	406,379	4,448,061
SAND-HILLS, CRANE:													
Daily average	90	127	176	208	311	455	360	379	402	377	305	326	
Month	2,790	3,683	5,456	6,240	9,641	13,650	11,160	11,749	12,060	11,687	9,150	10,106	107,372
WHITE and BAKER, PECOS:													
Daily average	5	6	5	4	3	4	.....	.....	.....	.....	.....	.....	
Month	155	174	155	120	93	120	.....	.....	.....	.....	.....	.....	817
TODD and WORLD, CROCKETT:													
Daily average	826	820	1,010	1,064	1,068	1,059	1,031	1,011	1,022	1,349	1,126	1,144	
Month	25,606	23,780	31,310	31,920	33,108	31,770	31,961	31,341	30,660	41,819	33,780	35,464	382,519
COWDEN, ECTOR:													
Daily average	3,753	3,761	5,393	6,388	6,984	6,817	6,114	6,597	5,982	6,396	6,362	7,129	
Month	116,343	109,069	167,183	191,640	216,504	204,510	189,534	204,507	179,460	198,276	190,860	220,999	2,188,885
ODESSA and ADDIS, ECTOR:													
Daily average	597	590	277	594	411	409	725	752	771	736	859	1,042	
Month	18,507	17,110	8,587	17,820	12,741	12,270	22,475	23,312	23,130	22,816	25,770	32,302	236,840
BOREN, GARZA:													
Daily average	17	18	18	20	19	20	55	51	47	126	93	116	
Month	527	522	558	600	589	600	1,705	1,581	1,410	3,906	2,790	3,596	18,384
CHALK-ROBERTS, HOWARD-GLASSCOCK:													
Daily average	17,980	20,112	17,276	20,073	20,211	19,144	18,981	18,969	17,513	17,912	16,439	16,614	
Month	557,380	583,248	535,556	602,190	626,634	574,320	588,411	588,039	525,390	555,272	493,170	515,034	6,744,644
MERTZON, IRION:													
Daily average	51	44	44	45	28	46	26	64	53	55	51	45	
Month	1,581	1,276	1,364	1,350	868	1,380	806	1,984	1,590	1,705	1,530	1,395	16,829
WHEAT, LOVING:													
Daily average	1,911	1,907	1,886	1,854	1,866	1,769	1,756	1,779	1,742	1,749	1,591	1,627	
Month	59,241	55,303	58,466	55,620	57,846	53,070	54,436	55,149	52,260	54,219	47,730	50,437	653,777
MITCHELL COUNTY:													
Daily average	4,780	5,265	5,310	5,669	6,914	7,613	8,488	8,492	8,303	8,196	7,616	7,954	
Month	148,180	152,685	164,610	170,070	214,334	228,390	263,128	263,252	249,090	263,376	228,480	246,574	2,592,169
COURTNEY, PECOS:													
Daily average	12	10	11	10	11	10	5	1	.....	.....	.....	.....	
Month	372	290	341	300	341	300	155	31	.....	.....	.....	.....	2,130
MASTERSON, PECOS:													
Daily average	156	154	173	211	210	204	625	616	519	827	811	906	
Month	4,836	4,466	5,363	6,330	6,519	6,120	19,375	19,096	15,570	25,637	24,330	28,086	165,729
PECOS VALLEY, PECOS:													
Daily average	242	253	356	426	608	809	479	488	476	511	412	456	
Month	7,502	7,337	11,036	12,780	18,848	24,270	14,849	15,128	14,280	15,841	12,360	14,136	168,367
KEYSTONE, WINKLER:													
Daily average	846	1,056	1,146	1,330	1,392	1,468	1,409	1,496	1,370	1,509	1,191	1,564	
Month	26,226	30,624	35,526	39,900	43,152	44,040	43,679	46,376	41,100	46,779	35,730	48,484	481,616

(Continued on Next Page)

Tough

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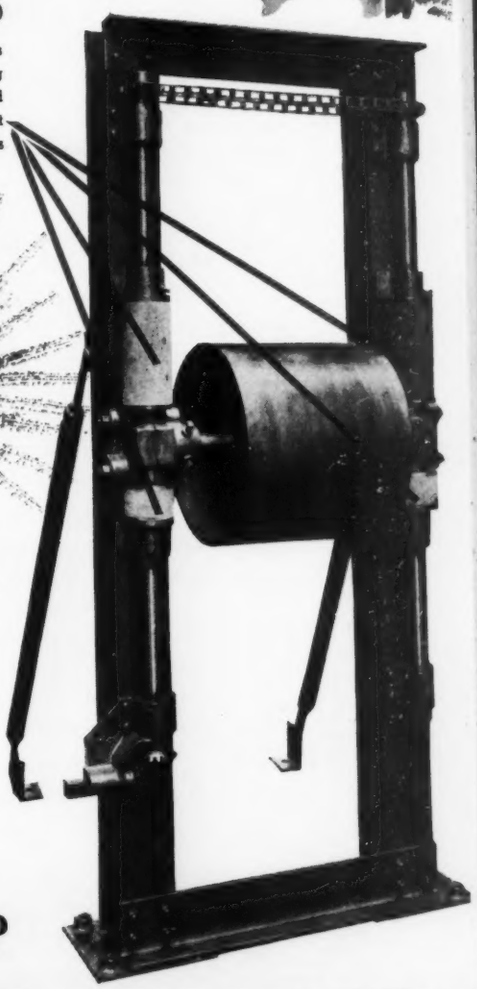

HAPPY Multi-Flex Belts with the HAPPY Belt Tightener are the combination to withstand tough service —yet with the FLEXIBILITY to ABSORB shock and NOT transmit it to expensive equipment. Shock, the cause of frequent break-downs and loss of production is STOPPED before damage can be done. In a *"nut-shell"* that's the HAPPY prescription for long life and economical operation—the reason for maximum available H.P. and low cost installation and operation for YOUR power transmission, there is but one answer—*HAPPY SHORT CENTER ENDLESS BELT DRIVE!*

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Survey, Ector County, topping the pay at 4,244 feet and drilling to 4,310 feet, making a 788-bbl. well. The Empire Gas & Fuel Co. stepped out over 2 miles farther to the north and completed a small well in section 22, Block 45, 1n. This well topped the pay at 4,265 feet, was bottomed at 4,667 feet, but plugged back to 4,430 feet to complete as a 10-bbl. producer, which makes it appear as a defining well on the north. These two Cummins areas will no doubt be linked by production.

Another small producer, an outpost well in the northwest corner of Ector County, was drilled 1 mile north of a small producer by the Grisham-Hunter Corp. on the R. B. Cowden ranch, section 10, Block 45, 2n, T.&P. Survey. It was drilled to 4,657 feet, but plugged back to 4,430 feet and acidized before completing for a 10-bbl. well. It may be connected with the small producer to the south when other wells are drilled between them, but such small and expensive wells lend no incentive for any immediate drilling.

Foster Pool

The Foster or Odessa pool was opened late in 1935, but the first well was not completed until January, 1936, by the Barnsdall Oil Co. and York & Harper on the Foster ranch, in section 13, Block 43, 2s, T.&P. Survey, 3 miles northwest of Odessa, in Ector County. The pool saw considerable drilling and was extended at least 3 miles northwesterly. The discovery well topped the pay at 4,090 feet, was drilled to 4,342 feet and plugged back to 4,000 feet to shoot with 300 quarts and complete. It made 266 bbls. per day on the pump.

The Cowden field, in the northern part of Ector County, was one of the most active spots in the Permian Basin during the year. The field was extended in all directions. Cowden was discovered by Stanolind Oil & Gas Co. nearly four years ago, and that company holds the greater interest. It has expanded into a field of major importance and will see a great amount of drilling in 1937.

Ordovician Completion

A discovery the latter part of 1935, which was also completed the fore part of 1936, which will probably have greater significance than now attributed to it, was the strike made by the Gulf Oil Corp. on the Waddell ranch, in section 4, Block B-27, P.S.L. Survey, in what is known as the Tubbs or Sand Hills field. This test topped the Simpson series at 6,060 feet and was drilled to a total depth of 6,450 feet and then plugged back to 6,317 feet to shut off water and shoot before completing. It topped the deep pay at 5,979 feet and made 123 bbls. per day on the pump when completed. The oil tested 34.7 degrees in gravity. It was the first Ordovician oil well completed in the district outside of the Big Lake field in Reagan County, and proved a second or deep pay for the Sand Hills field. One other test has been drilled about 2 miles to the northeast of this discovery, but so far it has proven dry in the deeper horizon. Other deep tests will be drilled later in the vicinity of the discovery, the Gulf carrying on the principal development in the area due to the fact that it holds a large block of leases.

Deeper Pay in Ward

One of the more important finds in West Texas in the latter part of the year was made by the Gulf Oil Corp. in the Estes area in southern Ward County when it deepened its No. 1 Estes in section 38, Block 34, H.&T.C. Survey, to 2,951 feet, picking up a deeper pay and completing a 535-bbl. well. This led to the deepening of wells on offset leases, and also the drilling of new wells to the deeper pay, where production was greater than in the shallower pay.

All areas in Ward County were active during the year, and with Winkler County formed the most active areas in West Texas. Pools in both counties were extended in all directions. One outpost well of importance in Winkler County was completed the latter part of the year by Cherry, Finley and others on the Lum Daugherty ranch, in section 3, Block C-23, about three-quarters of a mile from the New Mexico line and 2 miles from production in that state, and about 2 miles northwest of the Scarborough pool in Winkler County. It may prove to be a connecting link between the two interstate pools, but it is a small well, having made only 84 bbls. of oil and 84 bbls. of water per day on gas lift when completed. It was drilled to 3,210 feet after topping the pay at 3,120 feet, but was plugged back to 3,171 feet in an effort to shut off bottom-hole water, which was unsuccessful. An east offset is now being drilled.

The Henderson pool, north of the Hendrick field, was the most important area in Winkler County in 1936. The largest wells of the year in the county were completed there and the extension of the pool in all directions, especially to the north and northwest, was one of the features of the year.

The Halley and Emperor pools, the Sayre-Howe pool and the sandy lime trend which runs about 3 miles east of the Hendrick field and paralleling that field, all saw expansion and will all be given a greater development in 1937. This trend is nearly all proven as one long producing area from the Halley pool on the south to the Scarborough pool about 18 miles north, with the probability that all acreage on the trend will prove productive and possibly extend into the Eaves pool in New Mexico, mentioned above, even proving a greater field in size than the Hendrick field.

All of these active areas in Winkler County accounted for the drilling in the neighborhood of 250 wells. Only eight proved dry, these having been outpost tests seeking to extend the producing area. At least 250 wells are expected to be drilled in the county this year.

Glasscock Discovery

A small unimportant discovery, so far, was completed about 4 miles south of a small producing area in Glasscock County. Floyd C. Dodson and others opened a pool on lands of the Carter heirs, in section 8, Block 33, 3s, T.&P. Survey. It was drilled to 2,669 feet, but plugged back 5 feet to shut off bottom-hole water. It made only 72 bbls. of oil per day on the pump, plus 28 bbls. of water.

Schleicher County

John M. Cooper completed a small oil producer with a 14,000,000-foot gas production from the Pennsylvanian in southeastern Schleicher County in his No. 1 Bert Page, in section 40, Block L, B.H.&S.A. Survey, southeast of Eldorado. The well was drilled to

(Continued on Page 121)

West Texas (Continued)

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Tl. 1936 (bbls.)
TAYLOR-LINK, PECOS:													
Daily average	1,359	1,345	1,347	1,353	1,388	1,319	1,311	1,339	1,207	1,198	1,068	1,127	
Month	42,129	39,005	41,757	40,590	43,028	39,570	40,641	41,509	36,210	37,138	32,040	34,937	468,554
YATES, PECOS:													
Daily average	40,718	39,842	41,044	40,990	39,162	36,125	36,708	36,675	32,214	32,327	26,841	30,085	
Month	1,262,258	1,155,418	1,272,364	1,229,700	1,214,022	1,083,750	1,137,948	1,136,925	966,420	1,002,137	804,330	932,635	13,197,907
UPTON COUNTY:													
Daily average	7,111	7,964	9,576	9,495	8,792	8,854	8,989	9,160	8,794	9,711	9,914	11,310	
Month	220,441	230,956	296,856	284,850	272,552	265,620	278,659	283,960	263,820	301,041	297,420	350,610	3,346,785
GRAND FALLS, WARD:													
Daily average	9,825	10,256	14,792	14,374	14,610	14,585	14,716	14,599	13,690	13,882	12,826	13,508	
Month	304,575	297,424	458,552	431,220	452,910	437,550	456,196	452,569	410,700	430,342	384,780	418,748	4,935,566
MONAHANS-O'BRIEN, WARD:													
Daily average	6,733	6,646	10,779	11,088	11,175	10,612	7,594	8,200	8,594	9,411	7,884	10,046	
Month	208,723	192,734	334,149	332,640	346,425	318,360	247,814	254,200	257,820	291,741	236,520	311,426	3,332,552
HENDRICK, WINKLER:													
Daily average	15,683	15,477	15,750	15,952	15,946	13,617	16,492	17,211	16,423	17,497	16,112	17,794	
Month	486,173	448,833	488,250	478,560	494,326	408,510	511,252	533,541	492,690	542,407	483,360	551,614	5,919,516
NORTH WINKLER, WINKLER:													
Daily average	4,562	5,529	6,311	6,779	10,415	11,117	7,361	8,694	8,256	9,427	9,013	9,296	
Month	141,422	160,341	195,641	203,370	322,865	333,510	228,191	269,514	247,680	292,237	270,390	288,176	2,953,337
BIG LAKE, REAGAN:													
Daily average	8,610	8,207	8,880	8,812	8,660	7,684	7,709	7,616	7,633	7,686	7,512	7,641	
Month	266,910	238,003	275,280	264,360	268,460	230,520	238,979	236,096	228,990	238,266	225,360	236,871	2,948,895
PENN, ECTOR:													
Daily average	6,104	6,125	6,296	6,675	6,684	6,260	6,309	6,326	5,862	5,907	5,320	5,465	
Month	189,224	177,625	195,176	200,250	207,204	187,800	195,579	196,106	175,860	183,117	159,600	169,415	2,236,956
MEANS, ANDREWS:													
Daily average	892	935	1,089	1,465	1,515	1,447	1,355	1,363	1,207	1,249	976	1,248	
Month	27,652	27,115	33,759	43,950	46,965	43,410	42,005	42,253	36,210	38,719	29,280	38,688	450,006
WADDELL, CRANE:													
Daily average	660	1,415	1,920	2,067	2,047	1,914	2,758	2,944	2,675	2,716	1,091	1,142	
Month	20,460	41,035	59,520	62,010	63,457	57,420	85,498	91,264	80,250	84,196	32,730	35,402	713,242
MONROE, WARD:													
Daily average	25	25	26	24	25	24	23	25	24	25	24	23	
Month	775	725	806	720	775	720	713	775	720	775	720	713	8,937
GOLDSMITH, ECTOR:													
Daily average	526	390	605	485	606	1,024	930	1,226	1,408	2,227	1,412	1,566	
Month	16,306	11,310	18,755	14,550	18,786	30,720	28,830	38,006	42,240	69,037	42,360	48,546	379,446
SHIPLEY, WARD:													
Daily average	1,574	1,580	1,572	1,583	1,577	1,569	1,653	1,714	1,598	1,707	1,684	1,711	
Month	48,794	45,820	48,732	47,490	48,887	47,070	51,243	53,134	47,940	52,917	50,520	53,041	595,588
SCURRY COUNTY:													
Daily average							49	41	36	35	35	34	
Month							1,519	1,271	1,080	1,085	1,050	1,054	7,059
ESTES, WARD:													
Daily average								306	524	1,802	2,744	2,091	
Month								9,486	15,720	55,862	82,320	64,821	228,209
BENNETT, YOAKUM:													
Daily average							25	35	47	30	31	93	
Month							775	1,085	1,410	930	930	2,883	8,013
Daily average	146,893	152,519	166,545	172,921	175,615	168,688	168,196	172,265	161,678	170,697	153,795	167,323	164,831
Total 1936	4,553,683	4,423,051	5,162,895	5,187,630	5,444,065	5,060,640	5,214,076	5,340,215	4,850,340	5,291,607	4,613,850	5,187,013	60,329,065
Total 1935	4,552,381	4,149,964	4,600,741	4,392,450	4,469,983	4,305,750	4,596,711	4,497,139	4,406,970	4,601,268	4,669,260	4,745,759	53,988,376
Total 1934	3,824,284	3,618,748	4,081,832	4,051,380	4,346,572	4,172,130	4,315,820	4,551,513	4,440,960	4,095,472	3,932,190	4,273,164	49,704,065
Total 1933	4,921,994	4,455,612	5,079,691	4,875,600	4,981,948	4,913,940	5,041,282	5,170,893	4,215,180	4,011,369	3,668,760	3,936,442	55,272,711
Total 1932	5,784,135	4,991,045	5,528,137	5,551,500	5,624,237	5,328,870	5,413,034	5,342,602	5,067,210	4,976,306	4,896,570	5,004,485	63,503,071

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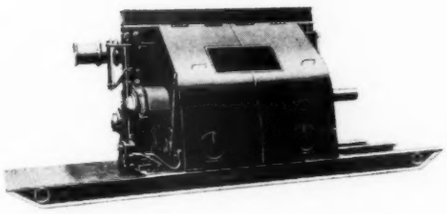

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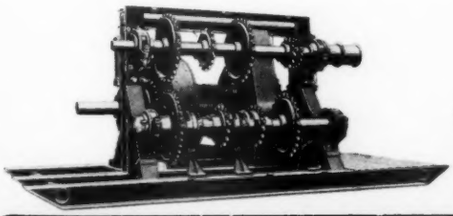

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Annual Review

TALCO AND SULPHUR BLUFF MAJOR EASTERN TEXAS DISCOVERIES

By L. E. BREDBERG

During the past 12 months the East Texas district, including the vast East Texas field, saw the completion of only 2,864 wells, or 2,620 oil wells; 230 dry holes, and 14 gas wells. The total number was 1,653 fewer than drilled the previous year, due principally to a marked slump in drilling in the East Texas field. The Trinity sand strike of the Tide Water Oil Co. and Seaboard Oil Corp. in the Cayuga field in northwest Anderson County in 1935, led to deeper prospecting in several areas in the district, two such deep tests uncovering Paluxy sand (upper member of the Trinity) production in the northwest corner of Titus County near Talco, and 3 miles south of Sulphur Bluff in Hopkins County. These were the only new fields opened in the district during the year. The discovery of these geologically deep pools resulted in a wildcat drilling play in the district, several deep tests proving failures, with others still drilling at the close of the year. The Rodessa discovery in Louisiana, with the extension of the field over into the Cass County, Texas, side, had a great effect upon deep wildcatting in eastern Texas. A big lease play was started in that area, which continues to extend itself deeper into Texas, nearly as far west as the East Texas field in Gregg and Rusk counties.

Sulphur Bluff

The second Paluxy sand (Trinity) field discovery was opened in June, 1936, about 18 miles southwest of the Talco field and on the same fault. Dilworth Hager, W. P. Luse and Leon Russ, all of Dallas, made this discovery in an area in which several Woodbine sand failures had previously been drilled. It is on the Worsham lands in the A. O. Wetmore Survey, 3 miles south of the small town of Sulphur Bluff in Hopkins County. The Paluxy sand was topped at 4,450 feet and bottomed at 4,500 feet and the well produced 530 bbls. per day on the pump. Elevation is 440 feet. To date 11 producers have been drilled in the pool, all of them being within a mile of the discovery well. The oil in this pool is similar to the Talco oil in gravity and other characteristics. Independents hold the greater part of the acreage, although the Empire Gas & Fuel Co. now has one producer in the pool and is drilling others and the Shell Petroleum Corp. is drilling its first test. The Gulf Oil Corp., which owned some nearby acreage, farmed this out to a drilling company for development.

The Tide Water Oil Co. and Seaboard Oil Corp. drilled their second Trinity test in the Cayuga field in the northwest corner of Anderson County this year, getting another distillate well about 2 miles southwest of their initial try for production in the pool, which also made a distillate well. Total depth of the second well was 7,570 feet. It flowed 16 bbls. of 62.5 gravity distillate with 11,925,000 feet of gas on an eight-hour test through one quarter-inch and one eighth-inch tubing chokes and one-half and three-eighths inch casing chokes.

An 18-mile 6-inch line was laid from the pool by Murchison and others, to connect with the Humble Pipe Line Co. trunk line at Talco, which will convey the oil to the East Texas field where it will be taken over by the American Liberty Pipe Line Co.

Another deep test drilled in the district off the fault, was that of the Gulf Oil Corp on the Ross lands, in the R. Erwin Survey, in the Camp Hill pool of eastern Anderson County. This test was abandoned at a total depth of 8,383 feet in the lower Glen Rose, deeper member of the Trinity.

A Trinity test in the Mexia field, where a couple of other deep tests were previously drilled, also proved dry although it had good showings. C. F. Lytle drilled this well on the J. L. Thompson farm in the Pedro Varella Survey, west of Mexia in Limestone County, to a total depth of 6,064 feet.

Talco Discovery

Housh, Thompson and others opened a vast deep Fault Line play early in February when their No. 1 C. M. Carr, in the M. V. Delgado Survey, about 2 miles east of the town of Talco in the northwest corner of Titus County, was completed

East Central Texas

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Tl. 1936 (bbls.)
BOGGY CREEK, CHEROKEE:													
Daily average	543	545	539	545	531	542	555	508	469	467	459	466	
Month	16,836	15,808	16,709	16,346	16,467	16,261	17,199	15,745	14,079	14,472	13,769	14,452	188,134
CURRIE, NAVARRO:													
Daily average	120	148	122	120	41	117	100	127	120	118	131	129	
Month	3,723	4,295	3,782	3,611	1,271	3,507	3,095	3,949	3,613	3,657	3,923	4,007	42,433
CAYUGA, ANDERSON:													
Daily average	4,186	5,183	5,310	5,513	6,050	6,047	6,133	5,917	5,475	6,231	6,439	7,570	
Month	129,769	150,309	164,610	165,396	187,852	187,414	190,136	183,441	164,258	193,173	193,173	234,662	2,138,193
MAGNOLIA FERRY, ANDERSON:													
Daily average	752	1,103	1,063	1,012	1,105	1,076	1,118	1,182	977	1,062	913	982	
Month	23,308	31,985	32,953	30,352	34,250	32,272	34,643	36,631	29,308	32,912	27,400	30,438	376,452
MEXIA, LIMESTONE:													
Daily average	2,157	2,123	2,149	2,179	2,156	2,070	2,129	2,108	2,082	2,045	2,022	1,991	
Month	66,867	61,559	66,619	65,373	66,844	62,106	66,013	65,359	62,464	63,401	60,646	61,727	768,978
POWELL, NAVARRO:													
Daily average	2,264	2,304	2,316	2,321	2,263	2,168	2,251	2,226	2,196	2,169	2,171	2,173	
Month	70,180	66,813	71,796	69,630	70,153	65,031	69,775	69,016	65,877	67,226	65,138	67,363	817,998
RICHLAND, NAVARRO:													
Daily average	33	31	36	33	19	23	20	20	17	18	19	19	
Month	1,025	898	1,054	987	592	690	606	609	520	569	571	592	8,733
RUSK, CHEROKEE:													
Daily average	253	219	211	138	175	177	175	210	190	185	145	163	
Month	7,840	6,354	6,541	4,144	5,425	5,316	5,425	6,510	5,700	5,735	4,350	5,049	68,391
VAN, VAN ZANDT:													
Daily average	32,477	34,755	35,360	36,128	36,567	34,856	34,003	33,986	33,496	35,428	29,429	34,510	
Month	1,006,774	1,007,899	1,096,160	1,083,833	1,133,569	1,045,559	1,054,092	1,053,564	1,004,878	1,099,510	882,875	1,069,811	13,348,524
WORTHAM, FREESTONE:													
Daily average	91	83	83	81	82	98	95	94	83	95	94	93	
Month	2,816	2,317	2,573	2,431	2,548	2,940	2,959	2,899	2,481	2,936	2,828	2,880	32,209
CAMP HILL, ANDERSON:													
Daily average	515	521	502	465	418	391	367	321	252	235	193	220	
Month	15,962	15,106	15,562	13,954	12,958	11,727	11,373	9,941	7,555	7,277	5,776	6,822	134,013
RODESSA, CASS:													
Daily average	1,098	686	1,078	1,819	2,496	4,510	6,276	7,909	11,984	15,501	29,592	25,816	
Month	34,038	19,898	33,423	54,569	77,367	135,300	194,565	245,192	359,509	480,531	617,735	809,283	3,063,630
TALCO-TITUS, FRANKLIN:													
Daily average			66	640	884	1,000	2,137	5,800	6,800	8,796	9,082	12,253	
Month			2,054	19,188	27,415	29,998	66,259	179,790	204,010	272,665	272,467	379,850	1,453,696
TRINITY:													
Daily average							1,000	974	827	945	780	800	
Month							31,008	30,188	24,812	29,286	23,395	24,812	163,501
SULPHUR BLUFF, HOPKINS:													
Daily average								355	322	315	654	671	
Month								11,000	9,650	9,750	19,625	20,798	70,823
MISCELLANEOUS:													
Daily average							547	534	579	488	506	491	
Month							16,958	16,542	17,372	15,120	15,190	15,219	96,401
Daily average	44,488	47,698	48,833	50,994	52,797	53,071	56,906	62,361	65,869	74,098	73,629	88,374	62,162
Total 1936	1,379,138	1,383,241	1,513,836	1,529,814	1,636,711	1,592,121	2,564,106	1,930,376	1,976,086	2,298,220	2,208,872	2,738,771	22,764,295
Total 1935	1,598,825	1,439,129	1,597,656	1,463,460	1,480,095	1,444,800	1,521,598	1,441,482	1,444,861	1,436,003	1,397,957	1,546,794	17,812,660
Total 1934	1,337,450	1,207,167	1,353,109	1,418,875	1,570,523	1,607,163	1,560,476	1,605,503	1,558,617	1,346,688	1,297,730	1,427,468	17,492,769
Total 1933	1,510,082	1,651,962	1,833,473	1,768,931	1,824,829	1,749,086	1,807,796	1,820,568	1,541,010	1,400,332	1,304,066	1,340,406	19,552,541

Material and Labor Costs
Cost of special installation tools and equipment
Cost of any construction delays caused by joint
Cost of repairs and maintenance chargeable to joint
Cost of resulting service interruptions
Any Liability Costs incident to joint failures
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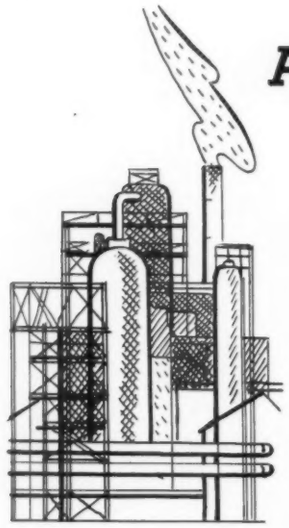

Suitability to purpose is a vital requirement in refinery tubes. With a wide range of standard and special analysis steels to draw upon, Timken tube technicians are in position to give you exactly what your operating conditions demand.

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TIMKEN

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on March 18 pumping 552 bbls. the first 24 hours from Paluxy sand, topped at 4,190 feet, total depth 4,208 feet. This was the first Paluxy sand producer completed in the East Texas district.

The discovery well was later carried deeper and recompleted in June at a total depth of 4,260 feet. It flowed and pumped 725 bbls. in 24 hours, producing more oil when a thicker body of sand was penetrated. The low-gravity viscous oil, which ranges as low as 14 degrees, and up to 24.5 degrees gravity, and with a sulfur content from 2.89 to 3.31 per cent, was frowned upon at first, but the Humble Pipe Line Co. laid a 65-mile 8-inch carrier into the field from its Longview station in the East Texas field, and that company and others started soliciting well connections for more of the oil, which has a mixed paraffin and asphalt base. An 18-mile line was laid from the field to Mount Pleasant where a 5,000-bbl. refinery is to be erected by Byrd-Frost, Inc., and associates, and two smaller refineries were erected in the field. Loading racks were used for shipping out oil in tank-cars to several refineries in East Texas, the first outlets for the crude.

The Humble Oil & Refining Co. held a large, long but narrow fault line block in this field, consequently has been doing the greater part of the drilling. Over 150 wells were drilled in the field which was extended into Franklin County about 3½ miles to the southwest and about the same distance to the southeast in Titus County, covering an area not over a half-mile in width, which is a true characteristic of a fault field.

Rusk Pool

The small Rusk pool, 5½ miles southwest of Rusk in Cherokee County, and discovered about two and one-half years ago by T. J. Woods and others on lands of the Birmingham Development Co., was extended 2 miles to the southwest last year when the same operators uncovered oil in No. 1 J. E. and J. O. Huggins, in the Levi Jordan Survey. It made 116 bbls. net oil from Woodbine logged at 5,140-86 feet, total depth, making 60 per cent b.s. and salt water, also. It made the fourth small producer for the field which has been defined in nearly every other direction.

Long Lake

The Long Lake field in southwest Anderson County was extended in several directions and now occupies a part of three counties, Anderson, Freestone and Leon. The Tide Water Oil Co. and others No. 1 Jesse L. Johnson, in the Wheeler Survey, Freestone County, made 40 bbls. per hour through three-eighths inch choke at total depth of 5,308 feet. It extended the field 1½ miles to the west.

Another extension for the field was made by the F.H.E. Oil Co. on the W. L. Moody tract in the J. Madden Survey.

Talco Sale

Byrd-Frost, Inc., J. F. Lucey and associates made a large purchase in the Talco field early in December, taking over 2,620 acres of leases in the field from the Gulf Oil Corp, making these independents the second largest lease holders and producers in the field, they were holding 800 acres in the field with seven producing wells. They are to drill 133 more tests on their acreage. The purchasers own the Talco Pipe Line Co., which has storage tanks and gathering lines in the field and a line to Mount Pleasant where they are erecting a 5,000-bbl. refinery.

EAST CENTRAL AND EAST TEXAS

Summary of Completions in 1936

County—	Comp.	Prod.	Dry	Gas
Anderson	69	6,320	3	9
Angelina	11	35	9	0
Bowie	2	0	2	0
Cherokee	31	1,081	9	0
Ellis	1	0	1	0
Fannin	11	0	11	0
Franklin	40	6,788	5	0
Freestone	10	337	6	1
Gregg	1,092	42,154	36	0
Henderson	21	1,856	7	1
Hill	1	0	1	0
Hopkins	10	5,728	0	0
Hunt	1	0	1	0
Kaufman	3	0	3	0
Lamar	8	0	8	0
Leon	1	0	1	0
Limestone	6	11	3	0
McLennan	2	0	2	0
Morris	4	0	4	0
Nacogdoches	4	0	4	0
Navarro	27	123	12	3
Rains	1	0	1	0
Red River	9	0	9	0
Rockwall	1	0	1	0
Rusk	799	35,334	27	1
Smith	195	6,792	18	0
Titus	135	19,120	9	0
Upshur	339	10,278	30	0
Van Zandt	28	1,924	6	0
Wood	1	0	1	0
Total, 1936	2,863	137,881	230	15

Summary by Months for 1936

Month—	Comp.	Prod.	Dry	Gas
January	230	7,915	18	2
February	208	7,333	11	1
March	241	8,394	18	1
April	321	18,435	23	0
May	236	8,748	24	1
June	245	9,546	23	1
July	319	13,948	28	4
August	240	14,920	20	0
September	171	8,238	18	0
October	246	13,333	20	3
November	210	15,425	13	2
December	196	11,646	14	0
Total, 1936	2,863	137,881	230	15
Total, 1935	4,417	212,682	268	23
Difference	1,554	74,801	38	8

East Texas Field

According to the engineering department of the Texas Railroad Commission, there were 2,336 oil wells added to the East Texas total this last year, swelling the total number of oil wells completed to over 22,000. The daily allowable production at the close of the year was being held to below 450,000 bbls., the potential production was rated above 13,343,495 bbls. per hour.

The last salt water report, compiled in November, showed over 1,800 wells in the field making 42,000 bbls. of salt water per day. The previous report showed 25,000 bbls. of salt water. The number of wells making water is only a small percentage of the total number of producers.

The field was extended along both sides and on the north end the past year, adding considerably to the total acreage covered by it but in drilling outposts tests in quest of production there were many failures drilled. Many of the completions in 1936 were put on the pump or swabbed.

West Texas Fields

(Continued from Page 116)

6,257 feet, but plugged back to 5,535 feet to complete. It logged the gas pay at 5,405-5,553 feet and the oil pay at 5,505-07 feet. Elevation is 2,270 feet. It made from 10 to 12 bbls. of oil with the volume of gas which may later be distributed in the towns of Eldorado and Sonora. Following upon this discovery the Magnua Oil Co. started drilling a test on a block of acreage farmed out by the Pure Oil Co. in the W. W. Russell, Grantee, Survey. The location is on the Judkins and Spencer ranch, in section 4. The test was drilled to a total depth of 6,527 feet, but plugged back to 5,912 feet where it was acidized, showing oil from that horizon. At this writing it was to be cleaned out and a heavier dose of acid given it in the hope of making a commercial producer. Elevation is 2,209 feet, and the showing was coming from the Ordovician instead of the Pennsylvanian. John M. Cooper will drill an offset to it this year.

Another Busy County

Jones County was another busy area, the Hawley field seeing much drilling, resulting in the discovery of a lime pay when Martin & Sons drilled No. 4 Dorsey, in Lot 5, M. Bueno Survey, to this new pay at 1,925 feet, and completing a 40-bbl. well at total depth of 1,949 feet after acidizing. The Cook sand is the main pay in the pool, with other sands below it, but some good lime wells have been opened since this discovery was made. The pool was extended by the drilling of a number of outpost wells.

Two new producing areas were opened in the county, the Spurrier pool and the Guitar pool. The former was opened by N. H. Martin & Sons of Wichita Falls on the E. P. Spurrier ranch, in subdivision 1, W. C. Walker Survey, 5 miles southwest of Luelders and 3 miles north of Nugent. The discovery made 72 bbls. of oil and 12 bbls. of water per day on the pump. Pay (Hope sand) was logged from 1,921 to 1,928 feet, total depth. It will prove a small pool according to tests already drilled in the area.

The other discovery for the year was made by the Alliance Oil Co. on lands of the Guitar Estate, in section 44, Block 15, T.&P. Survey, 3 miles east of the Hawley pool and 1 mile northeast of the town of Hawley. It topped the Cook sand at 1,991 feet and was completed for a 108-bbl. per day well only 2 feet in the pay formation. A couple of offset producers have been completed in the pool to date, with other tests drilling.

WEST TEXAS

Summary of Completions in 1936

County—	Comp.	Prod.	Dry	Gas
Andrews	16	7,722	0	2
Borden	2	0	2	0
Brewster	2	0	2	0
Concho	2	0	2	0
Cochran	1	84	0	0
Crane	72	70,212	5	0
Crockett	7	1,118	3	0
Culbertson	1	0	1	0
Ector	107	59,711	6	0
Edwards	1	0	1	0
Fisher	28	7,298	9	0
Gaines	5	50	3	1
Garza	7	338	3	0
Glasscock	17	1,988	5	0
Howard	131	64,027	10	0
Irion	2	0	2	0
Jeff Davis	1	0	1	0
Jones	101	20,616	42	0
Kimble	2	0	2	0
Loving	6	498	1	0
Lynn	1	0	1	0
Martin	1	0	1	0
Menard	1	0	1	0
Mitchell	3	10	2	0
Nolan	1	0	1	0
Pecos	159	45,678	29	3
Reagan	4	284	1	0
Reeves	2	0	2	0
Runnels	2	0	2	0
Schleicher	2	12	1	0
Scurry	3	36	1	0
Taylor	4	0	4	0
Tom Green	2	0	2	0
Upton	153	69,319	15	3
Ward	333	263,660	15	10
Winkler	401	302,578	13	5
Yoakum	3	234	2	0
Total, 1936	1,586	915,473	193	24

Summary by Months for 1936

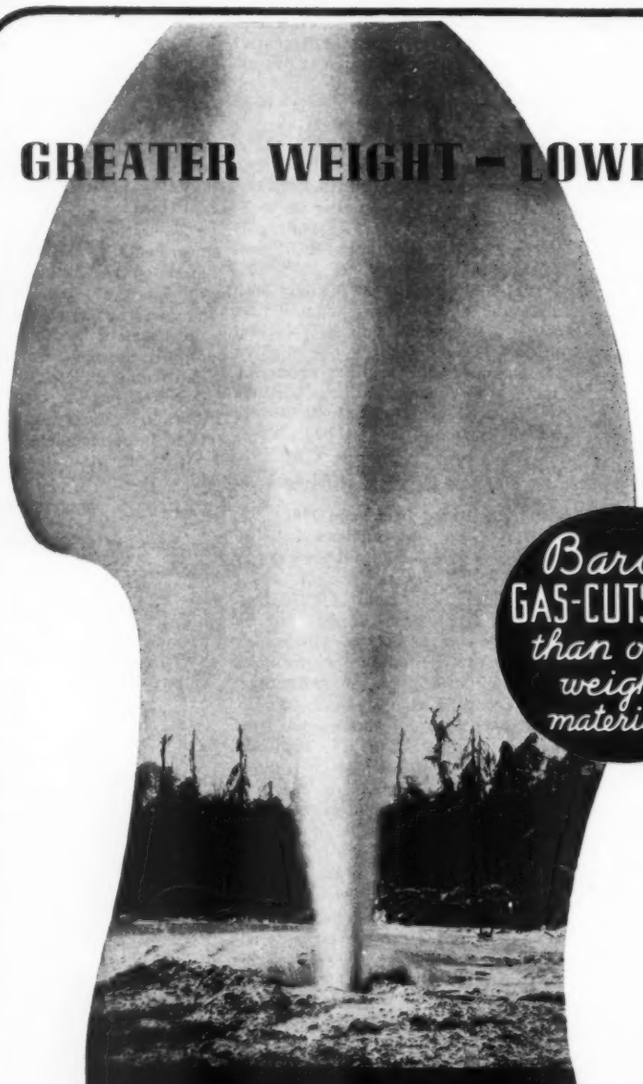
Month—	Comp.	Prod.	Dry	Gas
January	107	38,987	18	4
February	75	37,463	10	2
March	108	50,626	14	2
April	139	75,983	20	0
May	120	56,842	16	2
June	129	70,574	20	1
July	160	124,155	14	0
August	135	66,054	15	4
September	155	97,909	23	1
October	164	96,786	19	3
November	154	108,890	14	3
December	140	91,204	10	2
Total, 1936	1,586	915,473	193	24
Total, 1935	830	334,491	152	9
Difference	756	580,982	41	15

East Texas

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
LATHROP:													
Daily average	172,244	177,719	175,236	178,627	175,202	172,772	154,476	156,199	158,030	159,227	160,683	162,897	
Month	5,339,564	5,153,851	5,432,316	5,358,810	5,431,262	5,183,160	4,788,744	4,842,173	4,740,896	4,936,034	4,820,490	5,049,822	61,077,122
KILGORE:													
Daily average	139,633	144,066	140,840	145,672	146,110	140,061	128,730	130,179	131,692	132,689	133,925	135,748	
Month	4,328,623	4,177,914	4,366,040	4,370,160	4,529,410	4,201,830	3,990,622	4,035,541	3,950,747	4,113,365	4,017,748	4,208,190	50,290,190
JOINER:													
Daily average	147,441	152,125	148,742	153,313	147,216	147,893	138,859	140,396	142,054	143,130	144,450	146,430	
Month	4,570,671	4,411,625	4,611,002	4,599,390	1,563,696	4,436,790	4,304,638	4,352,266	4,261,625	4,437,035	4,333,502	4,539,321	53,421,561
Daily average	459,318	473,910	464,818	477,612	468,528	460,726	422,065	426,774	431,776	435,046	439,058	445,075	450,243
Total 1936	14,238,858	13,743,390	14,409,358	14,328,360	14,524,368	13,821,780	13,084,004	13,229,980	12,953,268	13,486,434	13,171,740	13,797,333	164,788,873
Total 1935	14,257,675	13,804,392	15,318,960	14,130,960	14,954,958	15,143,970	15,160,550	15,064,450	14,461,230	14,698,774	14,139,840	13,937,414	175,073,173
Total 1934	13,982,092	13,168,462	15,642,196	15,261,750	15,867,946	16,730,673	16,979,822	15,131,623	15,720,130	13,928,703	12,920,388	13,166,626	178,500,411
Total 1933	10,459,555	10,641,574	17,355,872	10,916,250	31,322,545	22,908,640	20,691,805	18,707,144	16,679,634	16,273,911	13,423,719	13,488,691	202,869,340
Total 1932	10,257,192	8,988,703	10,141,772	10,659,801	10,707,333	9,997,238	10,331,490	10,200,318	11,193,021	11,235,554	10,662,484	7,569,493	121,944,399
TOTAL EAST CENTRAL AND EAST TEXAS:													
Total 1936	15,617,996	15,126,631	15,923,194	15,858,174	16,161,079	15,413,901	15,648,110	15,160,356	14,929,354	15,784,654	15,380,612	16,536,104	187,540,165
Total 1935	15,856,500	15,243,521	16,916,616	15,594,420	16,435,053	16,588,770	16,682,148	16,505,932	15,906,091	16,134,777	15,537,797	15,484,208	192,885,833
Total 1934	15,319,542	14,375,629	16,995,305	16,680,625	17,438,469	18,337,836	18,540,298	16,737,126	17,278,747	15,275,391	14,218,118	14,594,094	195,791,180
Total 1933	11,969,637	12,293,536	19,189,345	12,685,181	33,147,374	24,657,726	22,499,601	20,527,712	18,220,644	17,674,243	14,727,785	14,829,097	222,421,881
Total 1932	11,752,519	10,523,809	11,846,674	12,323,546	12,473,164	11,814,351	12,111,443	11,951,366	12,823,774	12,816,323	12,131,563	9,129,196	141,697,727

GREATER WEIGHT – LOWER VISCOSITY WITH BAROID MUDS



Baroid GAS-CUTS LESS than other weight materials

WEIGHT plus *workability* assures a safe drilling mud in wildcat or in high pressure wells and reduces the danger of blowouts to a minimum. Weight alone is insufficient for safe drilling.

Heavy muds which are too thick are readily gas-cut, or permeated with gas. The presence of this gas lowers the weight of each unit volume of the mud, thus decreasing the total effective pressure of the mud column at the bottom of the hole. A mud may be sufficiently heavy to overcome formation pressures when mixed in the pit, but if it has too high a viscosity may become gas-cut and be blown from the well. Safety demands that heavy muds be thin enough to minimize gas-cutting.

Heavy muds are extremely hard to handle if their viscosity is high. Lower pump pressures are required to circulate muds of lower viscosity.

★ ★ ★

Field experience in high pressure areas has demonstrated that muds weighted with BAROID are more satisfactory because of their lower viscosity, their resistance to gas-cutting and consequent ease of handling.

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Canada Review

By VICTOR LAURISTON

Preliminary official figures of Canadian petroleum production for 1936 show a considerable gain over 1935 totals in all three producing provinces. The 1936 total for all fields (excepting Fort Norman) is 1,491,150 bbls., against 1,446,620 bbls. for 1935, a gain of 44,530 bbls.

Province—	1935 (bbls.)	1936 (bbls.)
New Brunswick	10,981	18,766
Ontario	164,931	165,715
Alberta	1,263,750	1,306,669
Total	1,439,662	1,491,150

In 1935 there was also approximately 7,000 bbls. from Fort Norman.

Natural Gas Production

In natural gas production the revised total for 1935 was 24,910,786,000 feet. In 1936, with December estimated, the total is 26,894,537 feet.

Province—	1935 (ft.)	1936 (ft.)
New Brunswick	608,591,000	596,000,000
Ontario	6,950,000,000	9,424,720,000
Alberta	14,933,300,000	16,658,217,000

In both years there was a nominal production, estimated at 600,000 feet from small wells in Manitoba. In Saskatchewan, the output marketed from the Lloydminster field, estimated at 75,200,000 feet in 1935, increased to approximately 215,000,000 feet in 1936.

Alberta Fields

In Alberta the Turner Valley field was still the major producer. Pipe line runs for 1935 and 1936 are as follows:

	1935 (bbls.)	1936 (bbls.)
January	80,734	79,127
February	77,492	74,146
March	80,957	76,687
April	75,013	76,615
May	79,481	75,980
June	82,642	79,479
July	83,480	101,392
August	83,930	98,454
September	76,953	94,077
October	75,185	95,756
November	81,305	95,576
December	87,355	.....
Total	966,527	.....

Pipe line deliveries are supplemented by sales to plants and consumers in the field, varying from 15,000 to 20,000 bbls. additional each month.

Alberta government returns with figures for December estimated, follows:

	1935 (bbls.)	1936 (bbls.)
Turner Valley limestone	1,208,321	1,259,496
Turner Valley other	18,691	13,160
Red Coulee-Border light crude	20,536	17,890
Wainwright heavy crude	14,638	14,813
Skiff heavy crude	1,564	310
Totals	1,263,750	1,305,669

Prior to 1936, Turner Valley production was officially classified as naphtha (from the Madison limestone) and light crude (from the upper horizons). The bringing in of a large crude oil producer in the limestone necessitated the new differentiation between limestone and other production.

With no new producers, the Alberta end of the Red Coulee field showed a natural decline in 1936. In the Wainwright field, a small but steady production of heavy crude is secured from about eight old wells cleaned out and reconditioned.

Turner Valley

The most important developments were in the Turner Valley field. Throughout the first six months, there was a steady decline in naphtha production. A few new producers in the naphtha area were small, and insufficient to offset the decline in older wells.

In June completion of Turner Valley Royalties No. 1, LSD 13, section 28-18-2w5, completely changed the outlook. This well, some distance down the west flank, got the Madison lime at 6,306 feet and finished at 6,824 feet with an initial flow of over 900 bbls. of about 44 gravity crude. Since then, with back-pressure, the well has maintained a steady production over 700 bbls. a day, its total output to the end of December probably exceeding 165,000 bbls.

This completion strengthened the theory that the Turner Valley wet gas and naphtha derived

(Continued on Page 147)

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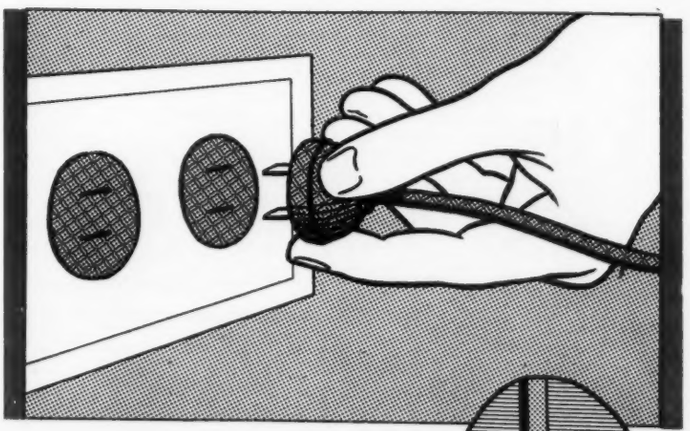

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Annual Review

POOLS OPENED IN COOKE AND JACK COUNTIES IN NORTH TEXAS

By L. E. BREDBERG

The two most important discoveries made in the North Texas district in 1936 were in Cooke and Jack counties. Other strikes made throughout the district were of minor importance.

Oils Industries, Inc., No. 1 Beasley, in the G. Hardesty Survey, Abstract 294, a short distance southeast of the town of Bryson, in Jack County, opened a field which has assumed semimajor importance, and is being linked with the older producing area near the town and apparently will expand into a field of major size. Independent operators and small companies hold all the acreage and are developing it.

The discovery well topped the sand pay at 2,954 feet, flowing 700 bbls. of high gravity crude the first 24 hours when drilled to a total depth of 2,986 feet. There are now over 90 new wells in the field, which has been one of the most active spots in the district during the year, the Texas Pipe Line Co. extended a line and gathering system into the field to take the oil.

Cato Oil Co. No. 1 J. A. Bailey, located 1 mile north of the town of Bryson, helped to prove a connecting link between the north and east pools in this area when it came in flowing at the rate of 1,000 bbls. per day at a total depth of 3,024 feet. The sand was topped at 3,010 feet. It was three-quarters of a mile west of the Bryson pool, which will continue to be the most active field in the district for at least six months, if not the entire year. Its discovery and development has led to a large amount of wildcat blocking and other leasing in the county and adjacent counties, with many tests being drilled and proposed for Jack County.

Hammon and Meredith not only extended the field a couple of miles to the southeast with a well, but they also opened another pay zone for the area at 2,433-49 feet in a different sand than found in the other area. This well is on the Rhodes farm in the R. N. Erwin Survey. It made 30 bbls. initially, causing the drilling of several wells around it. Further development is taking place now.

Anderson-Kerr Pool

The Anderson-Kerr pool, located about 3 miles southeast of Gainesville in Cooke County, and discovered by Anderson & Kerr of Oklahoma City, on the Bruhlmeyer farm, in the H. Strong Survey, opened next to the best new field for the district when their discovery made 786 bbls. per day on the pump from sand topped at 2,009 feet and drilled 5 feet in. This pool has been defined on all sides and will not make a field of major importance, as the Bryson field may do, but the high gravity oil, 42 degrees, and lack of trunk line outlet caused three small independent refining companies to erect plants at Gainesville to process crude from the field, another plant at Wichita Falls is also taking oil from the wells.

Shackelford Activity

Shackelford County was the most active county in the Ranger or West Central Texas district this year, especially the western part around the Davis and Morris and Buie and Cook ranches. Several extensions were made to producing areas and small shallow pools were opened.

Ranger Discovery

G. D. Chastain and others opened a pool near Ranger in Eastland County in August when their No. 1 Brashear, in the W. Van Norman Survey, 3 miles south of the town, made 700 bbls. of high gravity oil in 24 hours from the Ranger sand logged at 3,210 feet. This well is one-half mile from old production and another test was drilled about one-half mile to the northeast of it, but failed to make an oil well, producing only gas when completed. Chastain is preparing to drill another test on his lease.

Young County received a big drilling play during the year, especially from a deep drilling standpoint, resulting in the extension and discovery of several areas, principally in the South Bend sector. The Texas Co. opened one of these pools when its No. 1 Mrs. R. A. Stephens, in section 1,985, T.E.L. Survey, about 5 miles northeast of Graham, made 680 bbls. of oil from lime acidized at 4,057-83 feet. It also produced 4,687,000 feet of gas initially. This discovery is only 1 mile west of a well completed in 1933 by the same company which made 140 bbls. without acid treatment.

Helmerich & Payne opened a pool in Jack County when No. 1 M. K. Graham, in the B.B.B.&C. Survey, 5 miles west of Bryson, logged sand at 3,615 feet and was completed 2 feet in, making a flowing well.

L. T. Burns of Wichita Falls opened a shallow pool in Archer County. His No. 1 Bert Lowery, in the N. Scott Survey, 7 miles west of Archer City, and 1 mile south of the old Turbeville pool, logged sand at 1,498 feet. It made 152 bbls. the first 24 hours when swabbed at a total depth of 1,500 feet.

Gas Discovery

The Seaboard Oil Corp. opened a gas field in extreme wildcat territory in northwestern Hamilton County early in 1936, drilling a second test which also made a gasser for the pool. The discovery well is located on the L. T. Rhea farm in the David Cook Survey, and made over 12,000,000 feet of gas from Marble Falls lime at total depth of 2,455

North Texas

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Tl. 1936 (bbls.)
WICHITA COUNTY:													
Burkburnett—													
Daily average	2,216	2,285	2,393	2,446	2,463	2,452	2,497	2,512	2,492	2,525	2,518	2,497	
Month	68,696	66,265	74,183	73,380	76,353	73,560	77,407	77,872	74,760	78,275	75,540	77,407	893,698
Electra—													
Daily average	7,476	7,415	7,588	7,606	7,624	8,147	8,063	8,355	8,241	7,959	8,011	7,946	
Month	231,756	215,035	235,228	228,180	236,344	244,410	249,953	259,005	247,230	246,729	240,330	246,326	2,880,530
Iowa Park-K.M.A.—													
Daily average	2,362	2,274	2,263	2,208	2,275	2,227	2,165	2,126	1,988	1,979	1,962	1,947	
Month	73,222	65,946	70,153	66,240	70,525	66,810	67,115	65,906	59,640	61,349	58,860	60,357	786,123
Sunshine—													
Daily average	474	456	479	485	490	487	541	603	662	635	627	619	
Month	14,694	13,224	14,849	14,550	15,190	14,610	16,771	18,693	19,860	19,685	18,810	19,189	200,135
Miscellaneous—													
Daily average	2,110	2,095	2,189	2,210	2,216	2,231	2,040	2,011	2,014	1,988	1,970	1,962	
Month	65,410	60,755	67,859	66,300	68,696	66,930	63,240	62,341	60,420	61,628	59,100	60,822	763,501
ARCHER COUNTY:													
Daily average	15,511	14,588	14,763	14,900	14,880	15,611	14,712	14,693	14,611	14,233	14,210	14,188	
Month	480,841	423,052	457,653	447,000	461,280	468,330	456,072	455,483	438,330	441,223	426,300	439,828	5,295,392
CLAY COUNTY:													
Daily average	489	491	509	515	518	512	502	510	503	511	507	496	
Month	15,159	14,239	15,779	15,450	16,058	15,360	15,562	15,810	15,090	15,841	15,210	15,376	184,934
WILBARGER COUNTY:													
Daily average	7,911	7,828	8,162	8,375	8,444	8,231	9,394	9,086	9,117	9,194	8,963	8,911	
Month	245,241	227,012	253,022	251,250	261,764	246,930	291,214	281,666	273,510	285,014	268,890	276,241	3,161,754
MONTAGUE COUNTY:													
Daily average	5,393	4,985	5,316	5,495	5,482	5,410	5,802	5,712	5,740	5,378	5,710	5,672	
Month	167,183	144,565	164,796	164,850	169,942	162,300	179,862	177,072	172,200	166,718	171,300	175,832	2,016,620
YOUNG COUNTY:													
Daily average	10,416	10,313	10,646	11,971	10,816	10,942	10,817	11,110	10,966	11,604	10,832	10,914	
Month	322,896	299,077	330,026	359,130	335,296	328,260	335,327	344,410	328,980	359,724	324,960	338,334	4,066,420
BAYLOR COUNTY:													
Daily average	4,514	4,049	4,169	4,273	4,958	3,660	2,914	2,756	2,265	2,240	2,410	2,416	
Month	139,934	117,421	129,239	128,190	153,698	109,800	90,334	85,436	67,950	69,440	72,300	74,896	1,238,638
COOKE COUNTY:													
Daily average	2,580	2,388	2,616	2,810	2,876	2,842	4,099	4,118	5,839	6,652	7,655	9,234	
Month	79,980	69,252	81,096	84,300	89,156	85,260	127,069	127,658	175,170	206,212	229,650	286,254	1,641,057
FOARD COUNTY:													
Daily average	567	549	525	490	518	497	508	498	512	506	519	492	
Month	17,577	15,921	16,275	14,700	16,058	14,910	15,748	15,438	15,360	15,686	15,570	15,252	188,495
Daily average	62,019	59,716	61,618	63,784	63,560	63,249	64,054	64,090	64,950	65,404	65,894	67,294	62,819
Total 1936	1,922,589	1,731,764	1,910,158	1,913,520	1,970,360	1,897,470	1,985,674	1,986,790	1,948,500	2,027,524	1,976,820	2,086,114	23,357,283
Total 1935	1,879,747	1,740,760	1,874,384	1,825,350	1,919,210	1,852,710	1,925,813	1,828,349	1,932,990	1,880,305	1,885,890	1,935,640	22,481,148
Total 1934	1,740,898	1,644,440	1,867,223	1,837,590	1,887,187	1,815,210	1,922,217	1,986,945	1,863,540	1,897,479	1,719,510	1,871,129	22,053,368
Total 1933	1,568,693	1,424,220	1,566,120	1,538,340	1,520,023	1,404,090	1,463,696	1,528,703	1,548,450	1,725,460	1,664,940	1,733,489	18,686,224
Total 1932	1,587,262	1,557,764	1,624,803	1,573,380	1,654,625	1,620,540	1,667,304	1,646,100	1,584,420	1,597,957	1,530,150	1,572,103	19,216,409

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feet. The second test, drilled 3,500 feet north of the discovery, was carried 5,345 feet to the Ellenberger, but failed to pay off in that formation, and was plugged back to 2,565 feet where it made 11,000,000 feet of gas per day when casing was perforated.

Abandonment

The interesting area on the De La Fosse ranch in section 1,549, T.E.& L. Survey, eastern Shackelford County, was eliminated for the present when the third Ellenberger test on the ranch proved dry. Humble Oil & Refining Co. and Pitzer & West drilled this third test for Ellenberger production after the latter's first well seemed due to make a producer before being junked. Casing collapsed when a premature shot damaged it to such an extent that the hole could not be cleaned out. The third test topped the Ellenberger at 4,380 feet and was abandoned at 4,410 feet.

Two Young County discoveries were brought in by Nash and Windfor of Graham, Tex., and Ray & Staniforth of Wichita Falls. The latter firm discovered oil on the J. Wooten farm, in section 1,976, T.E.& L. Survey, 5 miles north of Graham and 1 mile north of the nearest producer. The well made 380 bbls. of oil in three hours from lime acidized at 3,940-63 feet, total depth. The Nash & Windfor discovery, located on the W. S. Simms farm, in the D. Franklin Survey, 2½ miles north of the nearest production and 2 miles southwest of Graham, logged saturated lime at 3,817 feet and flowed 400 bbls. of oil through three-eighths inch choke after acidizing.

The King Oil Co. opened another pool on the Waggoner ranch when it brought in No. 1-N W. T. Waggoner, in section 104, Block 14, H.&T.C. Survey, flowing and pumping 289 bbls. in 23 hours at a total depth of 1,552 feet, 2 feet in the sand.

NORTH AND CENTRAL TEXAS

Summary of Completions in 1936

County—	Comp.	Prod.	Dry	Gas
Archer	468	22,427	249	0
Baylor	43	4,110	3	0
Brown	22	414	12	2
Callahan	76	769	49	6
Clay	32	264	21	0
Coleman	14	258	8	1
Comanche	9	27	6	2
Cooke	360	41,511	108	2
Denton	5	0	5	0
Eastland	28	937	19	2
Erath	1	0	1	0
Foard	2	200	0	0
Grayson	3	0	3	0
Hamilton	2	0	0	2
Haskell	3	0	3	0
Jack	186	27,765	60	5
McCulloch	4	0	4	0
Mills	1	0	1	0
Montague	105	3,261	27	2
Palo Pinto	16	59	10	1
Shackelford	256	12,844	102	8
Stephens	19	408	8	3
Tarrant	1	0	1	0
Throckmorton	22	92	13	1
Wichita	311	10,070	128	0
Wilbarger	92	4,286	37	0
Wise	1	0	1	0
Young	572	49,479	290	3
Total 1936	2,654	179,181	1,196	49

Summary by Months for 1936

Month—	Comp.	Prod.	Dry	Gas
January	195	10,570	89	2
February	178	5,386	79	4
March	217	8,361	100	8
April	275	17,975	114	6
May	261	12,981	122	1
June	248	10,670	127	5
July	251	24,447	120	3
August	121	8,943	56	2
September	246	22,876	103	5
October	269	26,101	108	2
November	216	17,088	95	1
December	177	13,783	83	1
Total 1936	2,654	179,181	1,196	40
Total 1935	2,585	157,866	1,197	35
Difference	69	21,315	1	5

Panhandle District

The Panhandle district was one of the few in Texas which showed a decline in drilling during 1936. There were 44 fewer tests completed than in 1935, with wildcatting being almost at a standstill. One gas discovery was made in Collingsworth County and the deepest test ever drilled in the district was completed at 8,017 feet the fore part of the year by the Phillips Petroleum Co. It was dry and abandoned.

The gas test was drilled by Tom Hunter and associates, on the Tinsley ranch, in section 8, Block 13, H. &G.N. Survey. Elevation was 2,134 feet and total depth is 2,260 feet. However, it was plugged back to 1,880 feet before completing, making 2,080,000 feet of gas. This was the first gas producer ever completed in Collingsworth County, and was of such a small caliber that no other test has been drilled near it.

The Phillips Petroleum Co. deep test was on the Hughes ranch, in section 4, Block H, H. Stephens Survey. Elevation is 2,225 feet.

The dolomite pay area in Hutchinson County was extended 1½ miles to the west the fore part of the year by Harry Steckoll when he completed

(Continued on Page 135)

Texas Panhandle

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Tl. 1936 (bbls.)
CARSON COUNTY:													
Daily average	5,146	4,934	5,019	5,037	5,282	5,086	5,112	5,324	5,517	5,446	6,287	5,560	
Month	159,526	143,086	155,589	151,110	163,742	152,580	158,472	165,044	165,510	168,826	188,610	172,360	1,944,455
GRAY COUNTY:													
Daily average	29,584	28,175	29,116	29,470	30,815	30,116	29,612	29,993	29,825	29,611	29,887	30,826	
Month	917,104	817,075	902,596	884,100	955,265	903,480	917,972	929,783	894,750	917,941	896,610	955,606	10,892,282
HUTCHINSON COUNTY:													
Daily average	14,416	14,779	14,763	14,788	15,007	14,827	15,600	14,858	15,192	16,453	16,747	15,813	
Month	446,896	428,591	457,653	443,640	465,217	444,810	483,600	460,598	455,760	510,043	502,410	490,202	5,589,421
MOORE COUNTY:													
Daily average	1,107	1,177	1,184	1,209	1,309	1,256	1,575	1,492	1,449	1,327	1,494	1,330	
Month	34,317	34,133	36,704	36,270	40,579	37,680	48,825	46,252	43,470	41,137	44,820	41,230	485,417
WHEELER COUNTY:													
Daily average	11,647	9,626	11,494	11,355	12,400	10,111	10,172	9,911	9,156	9,105	8,375	8,512	
Month	361,057	279,154	356,314	340,650	384,400	303,330	315,332	307,241	274,680	282,255	251,250	263,872	3,719,535
Daily average	61,900	58,691	61,576	61,859	64,813	61,396	62,071	61,578	61,139	61,942	62,790	62,041	61,831
Total 1936	1,918,900	1,702,039	1,908,856	1,855,770	2,009,203	1,841,880	1,924,201	1,908,918	1,834,170	1,920,202	1,883,700	1,923,271	22,631,110
Total 1935	1,833,743	1,725,864	1,974,173	1,801,110	1,893,790	1,796,910	1,847,135	1,685,284	1,632,300	1,721,740	1,837,920	1,917,040	21,667,909
Total 1934	1,310,432	1,386,644	1,714,982	1,656,600	1,805,471	1,716,090	1,871,253	1,844,872	1,740,330	1,772,549	1,724,940	1,808,757	20,352,910
Total 1933	1,374,416	1,227,268	1,515,280	2,395,450	1,385,204	1,299,000	1,557,719	1,559,176	1,346,250	1,425,163	1,189,320	1,329,280	16,603,526
Total 1932	1,537,104	1,392,464	1,461,526	1,523,850	1,605,397	1,603,740	1,688,012	1,665,940	1,436,760	1,424,667	1,356,360	1,458,240	18,156,960

Central Texas

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Tl. 1936 (bbls.)
BROWN COUNTY:													
Daily average	1,809	1,815	1,811	1,810	1,762	1,730	1,798	1,812	1,726	1,802	1,791	1,762	
Month	56,079	52,635	56,141	54,300	54,622	51,900	55,738	56,172	51,780	55,862	53,730	54,622	653,581
CALLAHAN COUNTY:													
Daily average	1,563	1,519	1,549	1,558	1,589	1,611	1,659	1,740	1,689	1,588	1,672	1,568	
Month	48,453	44,051	48,019	46,740	49,259	48,330	51,429	53,940	50,670	49,228	50,160	48,608	588,887
COLEMAN COUNTY:													
Daily average	1,217	1,197	1,206	1,210	1,216	1,214	1,098	1,197	1,092	1,096	1,097	1,088	
Month	37,727	34,713	37,386	36,300	37,696	36,420	34,038	37,107	32,760	33,976	32,910	33,728	424,761
COMANCHE COUNTY AND MISCELLANEOUS:													
Daily average	673	661	669	665	674	679	671	604	621	592	616	611	
Month	20,863	19,169	20,739	19,950	20,894	20,370	20,801	18,724	18,630	18,352	18,480	18,941	235,813
EASTLAND COUNTY:													
Daily average	2,464	2,458	2,461	2,466	2,471	2,458	2,869	2,902	2,893	2,967	2,916	2,902	
Month	76,384	71,282	76,291	73,980	76,601	73,740	88,939	89,962	86,790	91,977	87,480	89,962	983,288
FISHER COUNTY:													
Daily average	5,580	4,916	5,117	5,200	5,207	5,293	4,352	4,412	4,360	4,238	4,366	4,291	
Month	172,980	142,564	158,627	156,000	161,417	158,790	134,912	136,772	130,800	131,378	130,980	133,021	1,748,241
HASKELL COUNTY:													
Daily average	14	3	32	35	32	33	18	19	21	19	20	19	
Month	434	87	992	1,050	992	990	558	589	630	589	600	589	8,100
JACK COUNTY:													
Daily average	1,310	1,376	1,467	1,750	1,761	1,747	2,403	2,253	2,676	2,666	2,643	2,649	
Month	40,610	39,904	45,477	52,500	54,591	52,410	74,493	69,843	80,280	82,646	79,290	82,119	754,163
JONES COUNTY:													
Daily average	2,074	2,247	2,180	3,100	3,210	3,215	4,734	4,265	5,306	4,503	4,571	4,514	
Month	64,294	65,163	67,580	93,000	99,510	96,450	146,754	132,215	159,180	139,593	137,130	139,934	1,340,803
PALO PINTO COUNTY:													
Daily average	356	336	331	323	321	330	355	358	329	374	369	363	
Month	11,036	9,744	10,261	9,690	9,951	9,900	11,005	11,098	9,870	11,594	11,070	11,253	126,472
RUNNELS COUNTY:													
Daily average	432	411	403	290	407	413	321	250	226	202	231	220	
Month	13,392	11,919	12,493	8,700	12,617	12,390	9,951	7,750	6,780	6,262	6,930	6,820	116,004
SHACKELFORD COUNTY:													
Daily average	5,978	5,832	5,828	5,817	6,511	6,760	6,976	6,817	7,491	7,342	7,591	7,608	
Month	185,318	169,128	180,668	174,510	201,841	202,800	216,256	211,327	224,730	227,602	227,730	235,848	2,457,758
STEPHENS COUNTY:													
Daily average	4,692	4,482	4,611	4,641	4,612	4,651	4,897	4,492	4,433	4,511	4,460	4,449	
Month	145,452	130,007	142,941	139,230	142,972	139,530	151,807	139,252	132,990	139,841	133,800	137,919	1,675,741
TAYLOR COUNTY:													
Daily average	98	92	89	80	76	75	60	60	49	34	40	36	
Month	3,038	2,668	2,759	2,400	2,356	2,250	1,860	1,860	1,470	1,054	1,200	1,116	24,031
THROCKMORTON COUNTY:													
Daily average	411	432	416	410	420	417	431	436	472	465	459	461	
Month	12,741	12,528	12,896	12,300	13,020	12,510	13,361	13,516	14,160	14,415	13,770	14,291	159,508
Daily average	28,671	27,778	28,170	29,355	30,269	30,626	32,642	31,617	33,384	32,399	32,842	32,541	30,867
Total 1936	888,801	805,562	873,270	880,650	938,339	918,780	1,011,902	980,127	1,001,520	1,004,369	985,260	1,008,771	11,297,351
Total 1935	904,766	778,204	905,758	862,290	908,883	875,220	895,466	897,760	877,560	906,798	878,040	887,220	10,571,971
Total 1934	835,326	819,308	919,243	856,440	913,260	900,300	937,502	938,339	905,100	940,013	889,500	904,053	10,758,384
Total 1933	687,859	931,260	698,678	664,980	676,420	610,350	639,623	650,566	641,490	102,305	695,010	706,459	8,006,000
Total 1932	644,118	626,458	666,128	647,130	680,481	661,440	688,602	696,198	635,850	683,023	673,260	695,578	7,998,267

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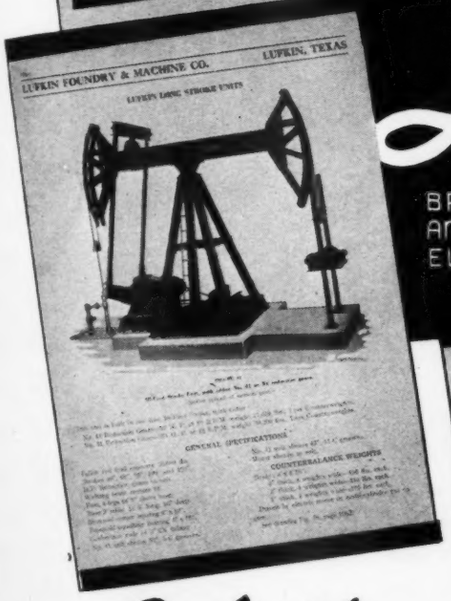

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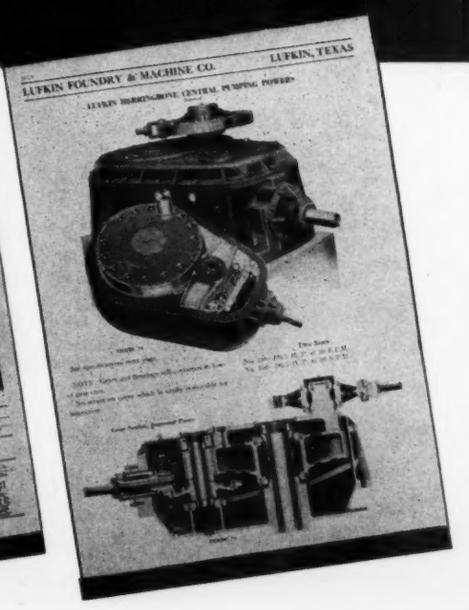

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Annual Review

34 OIL AND GAS POOLS DISCOVERED; RECORD WELLS IN OKLAHOMA

By DAL DALRYMPLE

The record of Oklahoma oil activity in 1936, as revealed by the annual statistics, stands out as one of the best in recent years.

Wildcat discoveries of the year kept pace with those of 1935 and surpassed 1934. More wells were completed than in any year since 1930, including some of the biggest gushers in the history of the state. Initial oil production was larger than in any year since 1931. More new gas wells were completed than in any year since 1931. Recovery of oil in the old stripper areas of northeastern Oklahoma increased, due to waterflooding and repressuring activities. Redrilling or plugging back of old wells in proven areas, to test sands previously neglected in the hurry to uncover Wilcox sand production, gained impetus and frequently was awarded with success. Leasing activity was unabated and many big blocks, held by both major companies and independent operators, were assembled and are yet to be tested.

A total of 2,565 wells were completed in the principal fields of the state in the past year, plus a considerable number of wells that were completed in the old shallow areas of eastern Oklahoma on which no accurate records are preserved. This was 555 greater than the total completions for 1935, and in that year the total went above the 2,000 mark for the first time since 1930, when 3,466 wells were completed.

Initial production of oil producers completed last year totaled 1,264,939 bbls., an increase of 110,757 bbls. over 1935. Initial production figures, however, mean little in view of the great variety of methods by which potential gauges are taken. However, the 1936 total stands out in comparison with the low of 1933, when initial production of new wells totaled only 307,323 bbls.

A total of 126 gas wells were completed in 1936, compared with 110 the previous year and the low record of 72 in 1933. Some of the new gas wells were among the largest ever completed in Oklahoma, or anywhere else.

On the other side of the picture, 649 of the 1936 completions failed to find production and were abandoned. This is an increase of 70 dry holes over the 1935 total and sets the record for failures since 1930, when 1,002 tests were dry and abandoned.

The most spectacular development program of the year in Oklahoma was the Capitol extension area of the Oklahoma City field. Operations were

Oklahoma

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Tll. 1936 (bbls.)
WASHINGTON COUNTY:													
Daily average	3,204	2,869	3,570	3,584	3,506	3,540	3,612	3,304	3,424	3,503	3,514	3,511	
Month	99,324	83,201	110,670	107,520	108,686	106,200	111,972	102,424	102,720	108,593	105,420	108,841	1,256,571
NOWATA COUNTY:													
Daily average	6,157	5,613	7,074	7,738	8,565	8,629	11,973	10,118	10,023	9,700	9,311	9,146	
Month	190,867	162,777	219,294	232,140	265,515	258,870	371,163	313,658	300,690	300,700	279,330	283,526	3,178,530
ROGERS COUNTY:													
Daily average	1,269	1,157	1,819	1,657	1,652	1,671	1,703	1,667	1,563	1,606	1,559	1,563	
Month	39,339	33,553	56,389	49,710	51,212	50,130	52,793	51,677	46,890	49,786	46,770	48,453	576,702
OSAGE AND EASTERN KAY COUNTIES:													
Burbank—													
Daily average	7,375	7,343	7,702	7,701	7,682	7,710	7,863	7,781	7,968	8,014	7,531	7,990	
Month	228,625	212,947	238,762	231,030	238,142	231,300	243,753	241,211	239,040	248,434	225,930	247,690	2,826,864
South Burbank—													
Daily average	11,963	12,641	14,440	16,373	15,179	15,718	14,806	15,450	15,172	15,206	14,446	15,296	
Month	370,853	366,589	447,640	491,190	470,549	471,540	458,986	478,950	455,160	471,386	433,380	474,176	5,390,399
Other Osage Pools—													
Daily average	22,805	23,307	23,810	23,609	23,827	23,837	23,178	22,041	21,761	21,417	21,383	20,960	
Month	706,955	675,903	738,110	708,270	738,637	715,110	718,518	683,271	652,830	663,927	641,490	649,760	8,292,781
TULSA COUNTY:													
Daily average	3,368	3,473	3,961	3,570	3,721	3,872	3,842	3,202	3,029	3,634	3,596	3,609	
Month	104,408	100,717	122,791	107,100	115,351	116,160	119,102	99,262	90,870	112,654	107,880	111,879	1,308,174
WAGONER COUNTY:													
Daily average	882	828	816	1,196	821	872	794	760	718	736	722	729	
Month	27,342	24,012	25,296	35,880	25,451	26,160	24,614	23,560	21,540	22,816	21,660	22,599	300,930
OKMULGEE COUNTY:													
Daily average	4,576	4,497	5,085	4,609	4,670	4,662	4,902	4,892	4,429	4,371	4,381	4,377	
Month	141,856	130,413	157,635	138,270	144,770	139,860	151,962	151,652	132,870	135,501	131,430	135,687	1,691,986
MUSKOGEE AND McINTOSH COUNTIES:													
Daily average	981	979	1,061	1,047	992	1,010	939	1,025	991	1,011	989	992	
Month	30,411	28,391	32,891	31,410	30,752	30,300	29,109	31,775	29,730	31,341	29,670	30,752	366,532
OKFUSKEE COUNTY—													
Daily average	3,643	3,559	4,528	4,732	4,759	4,711	3,605	2,317	2,625	2,510	2,583	2,577	
Month	112,933	103,211	140,368	141,960	147,529	141,330	111,755	71,827	78,750	77,810	77,490	79,887	1,284,850
POTTAWATOMIE, SEMINOLE, HUGHES AND PONTOTOC COUNTIES:													
Seminole City:													
Daily average	11,412	10,869	10,607	10,863	11,135	11,513	9,393	10,099	9,808	9,574	9,872	9,824	
Month	353,772	315,201	328,817	325,890	345,185	345,390	291,183	313,069	294,240	296,794	296,160	304,544	3,810,245
East Seminole:													
Daily average	1,674	1,543	1,711	1,960	3,124	3,618	3,787	3,802	3,913	4,309	3,585	4,133	
Month	51,894	44,747	53,041	58,800	96,844	108,540	117,397	117,862	117,390	133,579	107,550	128,123	1,135,767
Bowlegs:													
Daily average	8,739	10,119	11,614	14,738	13,979	12,916	11,303	11,825	11,282	11,881	11,758	11,985	
Month	270,909	293,451	360,034	442,140	433,349	387,480	350,393	366,575	338,460	368,311	352,740	371,535	4,335,377
Earlsboro and North and South Earlsboro:													
Daily average	8,213	7,492	8,354	8,282	7,903	8,166	10,328	7,862	7,008	7,484	7,417	7,006	
Month	254,603	217,268	258,974	248,460	244,993	244,980	320,168	243,722	210,240	232,004	222,510	217,186	2,915,109
East Earlsboro and West Seminole:													
Daily average	9,623	9,803	11,273	11,030	10,761	10,916	10,499	10,144	9,969	9,151	8,877	8,793	
Month	298,313	284,287	349,463	330,900	333,591	327,480	325,469	314,464	299,070	283,681	266,310	272,583	3,685,611
Little River and East Little River:													
Daily average	14,927	14,814	14,317	13,863	14,159	14,910	13,899	13,775	13,309	13,158	12,148	12,908	
Month	462,737	429,606	443,827	415,890	438,929	447,300	430,869	427,025	399,270	407,898	364,440	400,148	5,067,939
Searight and North Searight:													
Daily average	3,893	4,011	4,906	5,049	5,405	5,322	4,992	5,129	5,026	4,835	4,895	4,892	
Month	120,683	116,319	152,086	151,470	167,555	159,660	154,752	158,999	150,780	149,885	146,850	151,652	1,780,931
Mission—													
Daily average	2,650	2,591	2,478	2,570	2,601	2,562	2,231	2,439	2,356	2,271	2,191	2,288	
Month	82,150	75,139	76,818	77,100	80,631	76,860	69,161	75,609	70,680	70,401	65,730	70,928	891,297
Carr City—													
Daily average	4,604	5,597	6,244	7,422	6,867	6,766	5,492	6,783	5,573	5,297	6,055	5,976	
Month	142,724	162,313	193,564	222,660	212,877	202,980	170,252	210,273	167,190	164,207	181,650	185,256	2,215,966
Maud—													
Daily average	952	987	976	948	979	976	928	940	907	858	901	860	
Month	29,512	28,623	30,256	28,440	30,349	29,280	28,768	29,140	27,210	26,598	27,030	26,660	342,868
Wetley—													
Daily average	.....	563	407	349	353	346	351	246	221	227	194	201	
Month	.....	16,327	12,617	10,470	10,943	10,380	10,881	7,626	6,630	7,037	5,820	6,231	104,965
Shawnee—													
Daily average	385	416	464	515	630	611	678	704	890	691	648	652	
Month	11,935	12,064	14,384	15,450	19,530	18,330	21,018	21,824	26,700	21,421	19,440	20,212	222,300
Alabama—													
Daily average	.....	.....	.....	.....	.....	.....	172	168	169	174	171	173	
Month	.....	.....	.....	.....	.....	.....	5,332	5,208	5,070	5,394	5,130	5,363	31,497
TOTAL SEMINOLE FIELD:													
Daily average	66,687	67,826	72,480	76,725	76,913	77,665	72,852	72,798	69,151	68,818	67,699	68,665	
Month	2,067,297	1,966,954	2,246,880	2,301,750	2,384,303	2,329,950	2,258,412	2,256,738	2,074,530	2,133,358	2,030,970	2,128,615	26,179,757

(Continued on Next Page)

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OKLAHOMA CITY — W. H. STUEVE — OKLAHOMA

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carried beyond the northern limits of the city, and completion of 10,000- to 20,000-bbl. wells were almost daily occurrences in May, June and July. The northern limits soon were determined, however, water encroached, and the excitement cooled off. However, state owned lands and several exclusive residential tracts were opened to development and a goodly number of inside locations remain to be drilled in the extension sector. In November, the eleventh producer to be completed on state owned land by Sunray Oil Co. and Phillips Petroleum Co. was drilled 220 feet from the State Capitol, but oil was taken from directly under the Capitol due to directional drilling. This particular well made potential of 7,744 bbls. daily.

State's Biggest Wells

The Moore field of Cleveland County and the Crescent pool of Logan County provided some of the state's biggest gushers, and many more big wells are expected to be completed in those areas although their limits practically are determined. Throughout the greater part of the year the two fields ran a nip and tuck race for the distinction of having the biggest producer. The largest potential rating ever given an Oklahoma well, it is believed, was earned by a well completed in the Crescent area in September by the Carter Oil Co. and Gulf Petroleum Co. Based on a flow of 10,696 bbls. in four hours, it was given a potential of 64,680 bbls. daily. In September, Anderson-Prichard Oil Corp. brought in a producer in the Moore field that was rated as one of the biggest gassers ever completed in the state. Estimates of production ranged from 236,000,000 to 300,000,000 feet daily. The Moore discovery well, drilled by Sinclair Prairie Oil Co. and others on the community block, also was a tremendous gasser originally but eventually was completed as a big oil well. The big production found at Crescent in 1936 came nearly six years after the field was opened, when some of the older wells were deepened to the second Wilcox sand.

The Moore field is on the Nemeha trend, southwest of the Oklahoma City field; and the Crescent area is on the same trend to the north, with the Edmond and Britton pools between it and Oklahoma City. The strike at Lovell, Logan County, also was on this general trend, north of Crescent.

Production 200,880,705 Bbls.

Notwithstanding the Oklahoma Corporation Commission kept close to the U. S. Bureau of Mines in recommended production throughout the year, the demand for Oklahoma crude was such that producers piled up a total of 200,880,705 bbls. in crude output from wells during the year as against 182,596,874 bbls. in 1935, an increase of 18,283,831 bbls. The value of the production was much greater than in 1935 as the average price of crude nearly all of the year was 10 cents per barrel greater than the 1935 figure.

Deep Pay in Cement Field

In June, Ohio Oil Co. discovered a new deep producing sand in the Cement field at 6,285-6,357 feet, total depth, at No. 4 Marchand, section 2-5-9w. It flowed 1,077 bbls. of oil, with 71,000,000 feet of gas in 24 hours. The producing limits of the field later were extended to the north and west with several large gas wells.

The Tipton pool got its biggest producer when Gulf Oil Corp., most active operator in Jackson County, completed No. 4 Boucher, section 31-1n-19w, in Cisco pay at 2,652-54 feet.

Oklahoma (Continued)

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
Conservation—													
Daily average	183	184	165	197	192	194	170	166	139	161	134	142	
Month	5,673	5,336	5,115	5,910	5,952	5,820	5,270	5,146	4,170	4,991	4,020	4,402	61,805
Bethel—													
Daily average	122	107	130	124	109	122	123	115	96	130	94	107	
Month	3,782	3,103	4,030	3,720	3,379	3,660	3,813	3,565	2,880	4,030	2,820	3,317	42,099
Dill—													
Daily average	1,093	989	1,486	1,628	1,708	1,692	1,800	1,791	1,812	1,866	1,830	1,837	
Month	33,883	28,681	46,066	48,840	52,948	50,760	55,800	55,521	54,360	57,846	54,900	56,947	596,552
Grisso—													
Daily average	236	218	198	202	193	196	167	166	170	150	139	136	
Month	7,316	6,322	6,138	6,060	5,983	5,880	5,177	5,146	5,100	4,650	4,170	4,216	66,158
Grayson—													
Daily average	977	901	885	788	741	768	691	604	667	597	554	551	
Month	30,287	26,129	27,435	23,640	23,061	23,040	21,421	18,724	20,010	18,507	16,620	17,081	265,955
Yeager—													
Daily average	183	203	169	156	182	179	165	129	230	202	197	193	
Month	5,673	5,887	5,239	4,680	5,642	5,370	5,115	3,999	6,900	6,262	5,910	5,983	66,660
Wofford—													
Daily average	329	386	374	443	449	441	597	623	641	629	632	636	
Month	10,199	11,194	11,594	13,290	13,919	13,230	18,507	19,313	19,230	19,499	18,960	19,716	188,651
Gray—													
Daily average	1,685	1,738	1,656	1,662	1,652	1,616	1,482	1,486	1,469	1,465	1,441	1,419	
Month	52,235	50,402	51,336	49,860	51,212	48,480	45,942	46,066	44,070	45,415	43,230	43,989	572,237
Allen district—													
Daily average	6,746	7,060	7,137	7,910	8,532	9,884	10,326	9,667	8,715	8,008	8,442	8,391	
Month	209,126	204,740	221,247	237,300	264,492	296,520	320,106	299,677	261,450	248,248	253,260	260,121	3,076,287
Asher and West Asher—													
Daily average	913	871	869	828	740	772	710	626	734	647	714	711	
Month	28,303	25,259	26,939	25,140	22,940	23,160	22,010	19,406	22,020	20,057	21,420	22,041	278,695
Olympic—													
Daily average	2,686	4,134	4,820	6,079	7,616	8,016	6,975	9,780	7,737	8,122	10,778	12,015	
Month	83,266	119,886	149,420	182,370	236,096	240,480	216,225	303,180	232,110	251,782	323,340	372,465	2,710,620
St. Louis-Pearson—													
Daily average	21,294	22,170	23,028	25,411	25,337	25,815	22,093	23,182	22,329	23,650	22,889	22,919	
Month	660,114	642,930	713,868	762,330	785,447	774,450	684,883	718,642	669,870	733,150	686,670	710,489	8,542,843
Sasakwa—													
Daily average	1,962	2,110	2,286	2,336	2,868	2,761	2,612	2,452	2,324	2,251	2,211	2,455	
Month	60,822	61,190	70,866	70,080	88,908	82,830	80,972	76,012	69,720	69,781	66,330	76,105	873,616
Fitts—													
Daily average	35,043	42,049	47,737	50,059	54,158	51,802	48,694	62,539	62,890	64,839	63,491	68,984	
Month	1,086,333	1,219,421	1,479,847	1,501,770	1,678,898	1,554,060	1,509,514	1,938,709	1,886,700	2,010,009	1,904,730	2,138,504	19,908,495
Sasakwa Townsite—													
Daily average	1,328	1,156	1,022	965	905	881	676	680	652	665	627	671	
Month	41,168	33,524	31,682	28,950	28,055	26,430	20,956	21,080	19,560	20,615	18,810	20,801	311,631
Beebe—													
Daily average	3,299	3,072	3,373	3,159	2,707	2,816	2,586	2,601	2,641	2,665	2,598	2,586	
Month	102,269	89,088	104,563	94,770	83,917	84,480	80,166	80,631	79,230	82,615	77,940	80,166	1,039,835
Wewoka—													
Daily average	3,990	3,789	3,972	4,033	3,988	4,019	3,946	3,945	3,411	3,187	3,125	3,779	
Month	123,690	109,881	123,132	120,990	123,628	120,570	122,326	122,295	102,330	98,797	93,750	117,149	1,378,538
Cromwell—													
Daily average	3,886	3,559	3,863	3,722	3,807	3,816	3,729	3,622	3,486	3,539	3,393	3,416	
Month	120,466	103,211	119,753	111,660	118,017	114,480	115,599	112,282	104,580	109,709	101,790	105,896	1,337,443
Papoose-Gilcrease—													
Daily average	1,080	1,067	1,134	1,102	1,093	1,086	970	976	1,048	916	908	942	
Month	33,480	30,943	35,154	33,060	33,883	32,580	30,070	30,256	31,440	28,396	27,240	29,202	375,704
Holdenville—													
Daily average	1,301	1,241	1,277	1,150	1,187	1,116	1,125	1,123	1,164	1,087	1,102	963	
Month	40,331	35,989	39,587	34,500	36,642	33,480	34,875	34,813	34,920	33,697	33,060	29,853	421,747
Fish—													
Daily average	10,528	10,362	10,040	9,903	9,718	8,992	8,046	7,128	6,823	6,684	6,756	7,180	
Month	326,368	300,498	311,240	297,090	301,258	269,760	249,426	220,968	204,690	207,204	202,680	222,580	3,113,762
Konawa—													
Daily average	1,868	1,806	1,843	1,834	1,529	1,746	1,455	1,508	1,479	1,776	1,613	1,749	
Month	57,908	52,374	57,133	55,020	47,399	52,380	45,105	46,748	44,370	55,056	48,390	54,219	616,102
Jesse—													
Daily average	100	184	165	197	535	1,802	1,338	1,469	1,715	1,753	2,082	2,083	
Month	3,100	5,336	5,115	5,910	16,585	54,090	41,478	45,539	51,450	54,343	62,460	64,573	409,979
Keokuk—													
Daily average	2,031	2,281	2,367	2,499	2,623	2,615	2,656	2,811	2,891	3,052	3,063	3,207	
Month	62,961	66,149	73,377	74,970	81,313	78,450	82,336	87,141	86,730	94,612	91,890	99,417	979,346
South Keokuk—													
Daily average	1,752	2,161	2,670	3,016	3,208	3,866	2,818	3,251	3,379	3,497	3,635	3,892	
Month	54,312	62,669	82,770	90,480	99,448	115,980	87,358	100,781	101,370	108,407	109,050	120,652	1,133,277
Miscellaneous—													
Daily average	480	493	510	540	523	541	1,099	1,526	562	633	649	638	
Month	14,880	14,297	15,810	16,200	16,213	16,230	34,069	47,306	16,860	19,623	19,470	19,778	250,726
CREEK COUNTY:													
Glenn Pool, Sapulpa and Kiefer—													
Daily average	4,949	5,011	4,919	5,116	4,910	4,880	4,476	4,790	4,345	4,411	4,419	4,392	
Month	153,419	145,319	152,489	153,480	152,210	146,400	138,756	148,490	130,350	136,741	132,570	136,152	1,726,376
Cushing-Shamrock—													
Daily average	11,680	11,429	11,664	11,621	11,827	11,816	11,429	10,994	10,726	10,780	10,916	10,509	
Month	362,080	331,441	361,584	348,630	366,637	354,480	354,299	340,814	321,780	334,180	327,480	325,779	4,129,194
Bristow and Slick—													
Daily average	8,343	8,185	8,624	8,458	8,510	8,455	10,643	9,143	8,469	8,569	8,542	8,456	
Month	258,633	237,365	267,344	253,740	263,810	253,650	329,933	283,433	254,070	265,639	256,260	262,136	3,186,013
Mounds and Miscellaneous—													
Daily average	611	620	610	616	601	592	697	424	401	421	411	410	
Month	18,941	17,980	18,910	18,480	18,631	17,760	21,607	13,144	12,030	13,051	12,330	12,710	195,574

(Continued on Next Page)

IT PAYS TO KNOW!

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It flowed as high as 2,100 bbls. of oil in 16 hours. Several good producers have been completed in the pool.

The Tussy field of Carter County was extended across the line into Garvin County in August when Winkler & McQueen found production at No. 1 Davis, section 32-1n-3w, 2 miles north of production in the older Tussy district. It was completed in September, producing 672 bbls. of oil in 20 hours. The area, although spotted, has yielded several subsequent producers and is one of the active fields.

Other features of the year in proven sectors included extensions to the Edmond field, Oklahoma County; Lucien field, Noble-Logan counties; and the South Burbank area, Osage County, which was pushed northward to the edge of the old Burbank field.

Fitts Greatly Extended

Development of the prolific Fitts field of Pontotoc County continued unabated throughout the year and, although it was surpassed in number of operations and completions by the Oklahoma City field for a few weeks during the Capitol Extension boom, it soon regained the lead and was the pace setter for the state as 1936 ended. The producing limits were pushed to the north and east, and development of Hunton lime production was outstanding. Several horizons, including the Viola lime, Bromide, McLish and Wilcox sand are productive at Fitts.

To the southeast of Fitts, the Jesse pool, opened by Continental Oil Co. in 1935, got its second producer in March and development gained momentum as the year wore on. The Jesse pool was extended across the Pontotoc County line into Coal County by a 236-bbl. well that was completed in December by W. A. Delaney and Choctaw Oil Co.

Another busy field was the Olympic area in Hughes, Okfuskee and Seminole counties. Originally opened in Hughes County, it was extended into Okfuskee County late in February by Manahan & Grisso No. 1 Dalton, section 36-10-8, and also was extended west into the edge of Seminole County. The field has not been completely defined, and still is being extended to the north, west and east, especially in Okfuskee County. Production is from Senora sand at around 1,700 to 1,800 feet and, while not large, has ranged as high as 1,000 bbls. daily in some wells.

Wilcox sand production was discovered on the west side of the old Billings pool, Noble County, in February by Phillips Petroleum Co. and Shell Petroleum Corp., by a 10,000-bbl. well. In December, the field was extended one-fourth mile southwest by Tide Water Oil Co. with a 2,250-bbl. well.

34 Wildcat Discoveries

Wildcat strikes in 1936 totaled 34, the same number as completed in 1935, and three more than were completed in 1934. The 1936 discoveries included 11 gas wells and 23 oil wells. A majority of them were of minor consequence, but some were of considerable significance and opened up producing areas of some size. Twenty of the strikes were in the first six months of the year, 14 in the last half of the year.

Wildcat discoveries were divided among the counties, as follows: Caddo, one oil and one gas; Carter, three oil wells; Comanche, one gas well; Gravin, one oil well; Hughes, one oil and one gas well; Kiowa, four oil and one gas well; Lincoln, two oil and two gas wells; Logan, one oil well; McIntosh, one gas well; Noble, one oil well; Okfuskee, one oil and one gas well; Oklahoma, one oil well; Payne, two oil and one gas well; Pontotoc, two oil wells; Seminole, two oil and two gas wells; Stephens, one oil well.

The first new pool of the year was in Stephens County, at M. T. Cummings No. 1-A Aldridge, section 15-

Oklahoma (Continued)

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
PAWNEE, PAYNE AND CREEK COUNTIES:													
Yale, Maramec and Jennings district—													
Daily average	4,056	4,042	4,147	4,034	3,923	3,906	4,307	4,140	4,280	4,064	4,365	4,291	
Month	125,736	117,218	128,557	121,020	121,613	117,180	133,517	128,340	128,400	125,984	130,950	133,021	1,511,536
Masham-Ralston—													
Daily average	115	97	107	108	104	111	116	111	67	64	65	63	
Month	3,565	2,813	3,317	3,240	3,224	3,330	3,596	3,441	2,010	1,984	1,950	1,953	34,422
Ripley-Meehan—													
Daily average	166	221	222	216	205	213	228	244	192	250	217	221	
Month	5,146	6,409	6,882	6,480	6,355	6,390	7,068	7,564	5,760	7,750	6,510	6,851	79,165
Watchorn—													
Daily average	176	205	179	207	211	202	262	268	247	258	251	253	
Month	5,456	5,945	5,549	6,210	6,541	6,060	8,122	8,308	7,410	7,998	7,530	7,843	82,972
Cleveland-Keystone, Olive and Mannford—													
Daily average	4,864	4,890	4,870	4,861	4,856	4,848	4,648	4,459	3,829	4,318	4,281	4,276	
Month	150,784	141,810	150,970	145,830	150,536	145,440	144,088	138,229	114,870	133,858	128,430	132,556	1,677,401
Stillwater—													
Daily average	404	400	466	998	1,054	1,017	855	888	903	629	541	540	
Month	12,524	11,600	14,446	29,940	32,674	30,510	26,505	27,528	27,090	19,499	16,230	16,740	265,286
OKLAHOMA COUNTY:													
Oklahoma City—													
Daily average	135,365	136,963	132,577	144,310	139,811	137,400	132,787	148,055	140,796	142,427	141,634	147,547	
Month	4,196,315	3,971,927	4,109,887	4,329,300	4,334,141	4,122,000	4,116,397	4,589,705	4,223,880	4,415,237	4,249,020	4,573,957	51,231,766
Edmond—													
Daily average	6,762	9,175	10,881	12,573	12,142	11,989	10,836	12,392	15,004	13,706	13,486	14,341	
Month	209,622	266,075	337,311	377,190	376,402	359,670	335,916	384,152	450,120	424,886	404,580	444,571	4,370,495
Britton-North Britton—													
Daily average	868	1,606	1,498	2,061	2,253	2,210	2,034	2,422	2,432	2,445	2,673	2,613	
Month	26,908	46,574	46,438	61,830	69,813	66,300	63,054	75,082	72,960	75,795	80,190	81,003	765,977
LINCOLN COUNTY:													
Davenport-Kendrick and Miscellaneous—													
Daily average	674	611	667	672	669	646	694	701	816	814	891	809	
Month	20,894	17,719	20,677	20,160	20,460	19,380	21,514	21,731	24,480	25,234	24,030	25,079	261,358
Chandler-Hoyt—													
Daily average	3,935	3,876	4,231	4,023	4,345	4,117	4,237	4,063	3,892	3,796	3,916	3,677	
Month	121,985	112,404	131,161	120,690	134,695	123,510	131,347	125,953	116,760	117,676	117,480	113,987	1,467,648
Stroud-Skellyville—													
Daily average	636	629	646	652	647	651	605	611	514	525	517	516	
Month	19,716	18,241	20,026	19,560	20,057	19,530	18,755	18,941	15,420	16,275	15,510	15,996	218,027
Gessman—													
Daily average	162	143	156	160	158	159	161	159	128	130	126	132	
Month	5,022	4,147	4,836	4,800	4,898	4,770	4,991	4,929	3,840	4,030	3,780	4,092	54,135
Wilzetta—													
Daily average	468	453	442	453	436	432	362	359	375	374	337	343	
Month	14,508	13,137	13,702	13,590	13,516	12,960	11,222	11,129	11,250	11,594	10,110	10,633	147,351
Lafoon—													
Daily average	446	906	629	686	1,318	1,076	1,024	1,010	824	1,071	810	813	
Month	13,826	26,274	19,499	20,580	40,858	32,280	31,744	31,310	24,720	33,201	24,300	25,203	323,795
KAY, GRANT AND NOBLE COUNTIES:													
Blackwell, Deer Creek, Otstot and Webb—													
Daily average	1,034	1,073	1,085	1,131	1,042	1,073	1,611	1,018	1,658	977	1,117	1,102	
Month	32,054	31,117	33,635	33,930	32,302	32,190	49,941	31,558	49,740	30,287	33,510	34,162	424,426
Dilworth—													
Daily average	545	527	537	551	571	562	600	576	572	561	563	561	
Month	16,895	15,283	16,647	16,530	17,701	16,860	18,600	17,856	17,160	17,391	16,890	17,391	205,204
Ponca City—													
Daily average	265	286	242	295	246	263	259	257	244	263	231	238	
Month	8,215	8,294	7,502	8,850	7,626	7,890	8,029	7,967	7,320	8,153	6,930	7,378	95,154
Mervine-Newkirk—													
Daily average	147	129	142	153	124	137	131	125	138	127	128	128	
Month	4,557	3,741	4,402	4,590	3,844	4,110	4,061	3,875	4,140	3,937	3,840	3,968	49,065
Braman—													
Daily average	1,325	1,351	1,461	1,626	1,557	1,573	2,101	2,269	2,387	2,347	2,098	2,103	
Month	41,075	39,179	45,291	48,780	48,267	47,190	65,131	70,339	71,610	72,757	62,940	65,193	676,752
Hubbard—													
Daily average	685	676	624	621	617	616	637	638	697	612	652	656	
Month	21,235	19,604	19,344	18,630	19,127	18,480	19,747	19,778	20,910	18,972	19,560	20,336	235,723
Thomas—													
Daily average	293	276	296	291	290	293	289	284	280	277	267	265	
Month	9,083	8,004	9,176	8,730	8,990	8,790	8,959	8,804	8,400	8,587	8,010	8,215	103,748
Tonkawa—													
Daily average	2,944	2,888	2,989	2,852	2,767	2,793	2,789	2,701	2,641	2,652	2,658	2,649	
Month	91,264	83,752	92,659	85,560	85,777	83,790	86,459	83,731	79,230	82,212	79,740	82,119	1,016,295
Billings—													
Daily average	231	769	278	282	471	466	563	704	757	626	778	769	
Month	7,161	22,301	8,618	8,460	14,601	13,980	17,453	21,824	22,710	19,406	23,340	23,839	203,693
Miscellaneous—													
Daily average	317	316	311	315	302	296	387	530	323	440	462	463	
Month	9,827	9,164	9,641	9,450	9,362	8,880	11,997	16,430	9,690	13,640	13,860	14,353	136,294
Lucien—													
Daily average	10,283	10,301	12,481	12,631	13,339	13,411	11,894	12,596	12,981	12,617	12,532	13,792	
Month	318,773	298,729	386,911	378,930	413,509	402,330	368,714	390,476	389,430	391,127	375,960	427,552	4,542,441
Vernon—													
Daily average	481	426	457	489	461	473	452	447	438	445	412	418	
Month	14,911	12,354	14,167	14,670	14,291	14,190	14,012	13,857	13,140	13,795	12,360	12,958	164,705
Polo—													
Daily average	3,166	3,443	3,358	3,422	3,362	3,329	2,895	2,729	2,412	2,463	2,101	2,341	
Month	98,146	99,847	104,098	102,660	104,222	99,870	89,745	84,599	72,360	76,353	63,030	72,571	1,067,501

(Continued on Page 135)

From Top to Bottom!

M.I.W.

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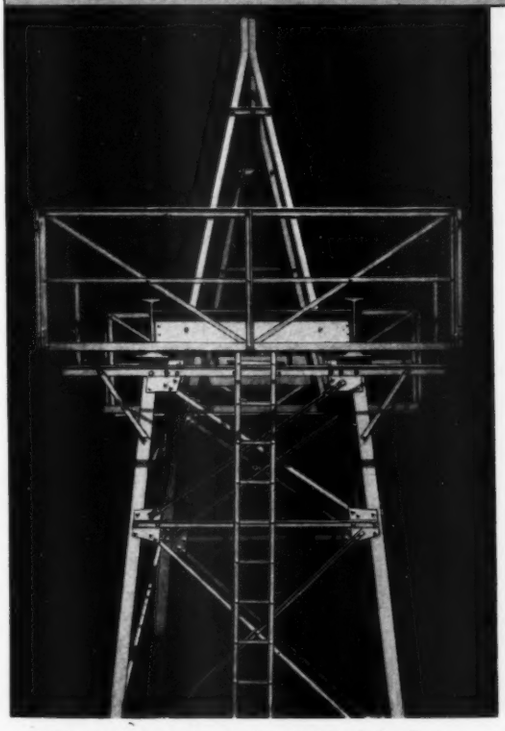

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1s-4w, Stephens County. It was completed in January for 3 bbls. of oil and 1,500,000 feet of gas at 415 feet.

Other January discoveries included a large gasser at the north edge of Cushing, Payne County; and a gasser northeast of Wewoka, Seminole County. Deep Rock Oil Corp. drilled the Cushing well, and the Wewoka strike was at Van Deventer No. 1-A Bender, an old well deepened to Cromwell sand.

Discoveries in February and March were as follows: Texas Co. completed a gasser in section 28-14-5, Lincoln County, at 4,188 feet. William J. Sherry and others No. 1 Washington, section 21-13-7, opened a gas area in northwestern Okfuskee County. A small oil well was completed by W. C. Adams and others in section 34-7-17w, Kiowa County, total depth 1,547 feet. Schermerhorn Oil Co. completed a 6-bbl. well between the Hewitt and Wheeler areas, Carter County, in section 2-4s-2w. A gasser was completed by M. H. Halsey in section 11-8-9, Hughes County, total depth 3,454 feet.

Another Kiowa County wildcat was completed as a 5-bbl. well at Burns & Moore No. 1 Webster, section 2-6-17w. The Stanolind and Amerada companies opened an area at No. 1 Crawford, section 35-15-2e, west of Chandler, Lincoln County, with a wildcat producing 25 bbls. of oil and 3,000,000 feet of gas; 5,243 feet, total depth.

In April, Stanolind, Amerada and Eason companies made one of the important strikes of the year at No. 1 Gregg, section 20-18-4w, west of the Lovell area, Logan County. It produced 1,045 bbls. of oil, with 40,000,000 feet of gas in 24 hours; total depth, 6,145 feet. Other April strikes included a small oil producer in section 23-15-3w, Logan County; a gasser in section 21-3-10w, Comanche County; a small oil well in section 30-5-4, Pontotoc County; and a 240-bbl. well in section 17-13-3w, Britton area, Oklahoma County.

Fox Deep Sand

There was much work in southern and southwestern Oklahoma throughout the year, both in proven districts and in the search for new production. An outstanding development was the completion in June of the Carter Oil Co. and others deep discovery well in the Fox field, Carter County. It found the pay in 1935 but was not completed until 1936. On completion test it produced 3,309 bbls. of oil in 24 hours from Simpson pay at 8,055-8,105 feet, and was followed by a widespread campaign of deep drilling in the southern counties.

Results at several of the subsequent deep tests were disappointing. A second deep test in the Fox field, west of the discovery well, failed to find the pay and was abandoned. Another is being started to the west of it, across the line in southern Stephens County. Deep tests were dry and abandoned in Marshall, Love, Carter, Jefferson, Stephens, Caddo and Tillman counties. However, there was some encouragement. Sinclair Prairie Oil Co. found small production in a deep well in the Stockton area, Love County, but the well has not been completed. The Amerada and Stanolind companies failed to find deep pay in a well north of Marietta, Love County, but did produce some oil after plugging back to an upper lime horizon. Ed Parson's deep test near Marlow, Stephens County, has been abandoned since the turn of the year but late in 1936 it had shows of oil and gas which operators feel justify the drilling of another test in the general vicinity. Indian Territory Illuminating Oil Co. deep well south of Frederick, Tillman County, was hailed as a pool opener when it produced some oil in November but water intruded and operators were unable to complete it as a producer.

Three areas stood out in southern and southwestern Oklahoma in 1936—Cement field, Caddo County; Tipton area, Jackson County, and Tussy pool, Carter-Garvin counties.

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OKLAHOMA

Summary of Wells Completed in 1936

County—	Comp.	Prod.	Dry	Gas
Alfalfa	1	0	1	0
Atoka	5	0	5	0
Beaver	1	0	1	0
Beckham	5	0	3	2
Bryan	3	0	3	0
Caddo	12	2,309	6	4
Carter	125	8,469	22	5
Cleveland	16	37,261	5	0
Coal	9	236	7	1
Comanche	36	80	22	4
Cotton	11	55	5	2
Creek	154	6,668	41	13
Garfield	7	0	7	0
Garvin	19	2,913	8	0
Grady	7	52	3	1
Grant	2	0	2	0
Hughes	138	23,567	24	12
Jackson	54	11,383	21	0
Jefferson	28	545	9	0
Johnston	3	0	3	0
Kay	17	20	10	6
Kiowa	26	65	19	0
Lincoln	34	11,696	11	3
Logan	24	49,873	5	0
Love	1	0	1	0
Marshall	35	329	20	1
McClain	1	0	1	0
McCurtain	1	0	1	0
McIntosh	5	0	3	2
Murray	1	0	1	0
Muskogee	37	328	19	0
Noble	29	16,535	11	0
Okfuskee	157	24,316	29	9
Oklahoma	252	510,399	13	2
Okmulgee	127	1,557	59	17
Osage	273	82,082	56	9
Pawnee	13	117	6	0
Payne	13	1,421	5	0
Pittsburg	6	0	2	4
Pontotoc	423	394,725	32	11
Pottawatomie	49	13,634	7	1
Pushmataha	1	0	1	0
Roger Mills	1	0	1	0
Seminole	268	63,452	70	7
Stephens	88	1,036	31	4
Texas	1	0	0	1
Tillman	7	320	6	0
Tulsa	44	455	24	4
Wagoner	11	41	7	1
Total 1936	2,565	1,264,939	649	126

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	223	136,316	62	22
February	145	36,376	31	13
March	161	57,030	48	9
April	213	99,743	59	8
May	207	103,466	57	5
June	271	189,548	75	9
July	300	195,445	86	13
August	244	115,012	51	13
September	178	104,971	48	6
October	219	92,589	64	7
November	178	54,301	48	11
December	226	80,142	50	12
Total 1936	2,565	1,264,939	649	126
Total 1935	2,010	1,154,182	579	110
Difference	555	110,757	70	16
Total 1934	1,717	673,875	465	91
Total 1933	1,093	307,323	352	72
Total 1932	1,130	647,316	381	106
Total 1931	1,058	1,941,805	374	194
Total 1930	3,466	5,628,234	1,002	403
Total 1929	3,613	1,178,945	1,245	349
Total 1928	3,679	1,016,000	1,227	491
Total 1927	4,513	1,971,081	1,443	594

RESULTS OF WILDCAT DRILLING, 1936

County—	Oil and gas wells	Dry holes	Av. depth of dry holes
Alfalfa	0	1	7,332
Atoka	0	3	3,866
Beaver	0	1	6,794
Beckham	0	3	2,552
Bryan	0	2	1,048
Caddo	2 (1 gas)	2	8,305
Carter	3	1	884
Coal	0	6	5,101
Comanche	1 (gas)	4	897
Cotton	0	2	2,864
Creek	0	2	3,635
Garfield	0	4	6,007
Garvin	1	7	4,250
Grant	0	1	6,174
Grady	0	2	3,963
Hughes	2 (1 gas)	5	3,134
Jackson	0	7	2,673
Jefferson	0	8	3,050
Johnston	0	3	2,927
Kay	0	8	3,091
Kiowa	5 (1 gas)	9	724
Lincoln	4 (2 gas)	3	4,530
Logan	1	2	5,491
Love	0	1	4,960
Marshall	0	5	1,850
McClain	0	1	8,775
McCurtain	0	1	2,926
McIntosh	1 (gas)	2	4,282
Murray	0	1	2,674
Noble	1	2	4,906
Okfuskee	2 (1 gas)	3	2,512
Oklahoma	1	4	6,822
Osage	0	6	2,811
Payne	3 (1 gas)	1	4,175
Pontotoc	2	6	2,554
Pottawatomie	0	2	3,785
Roger Mills	0	1	6,503
Seminole	4 (2 gas)	12	3,890
Stephens	1	5	2,849
Tillman	0	6	3,502
Total	34	145	
Average depth oil and gas wells, ft.			3,386
Average depth of dry holes, ft.			3,465
Percentage of oil wells			12.9
Percentage of gas wells			6.1
Percentage of dry holes			81.0

An Expensive Failure

One of the outstanding failures of the year was Denver Producing & Refining Co. No. 1 Sah-Cam, section 33-10-10w, second well to be drilled in the Binger area, Caddo County. Operators were unable to make a producer after drilling to 10,084 feet and plugging back to 8,147 feet. Other deep failures were drilled in Roger Mills County, Beaver County, Alfalfa County, McClain County, Oklahoma County, and in Garvin and Coal counties.

The Stout Pool

The Stout pool was opened in northwestern Seminole County in the week ending May 2 at Amerada Petroleum Corp. and others No. 1 Community Stout, section 3-10-5. It produced 912 bbls. of oil in 24 hours, producing from Hunton lime at total depth of 4,421 feet. Also in May, Magnolia Petroleum Co. completed a gasser at the west end of the Cement district, Caddo County, and Imperial Drilling Co. completed a wildcat gasser in section 32-9-8, south of the Bethel area. Texas Co. completed a small wildcat oil producer south of the Hewitt field, Carter County, early in June, later working it over and recompleting it. Late in June, Indian Territory Illuminating Oil Co. completed a gasser at No. 1 Tancred, section 9-9-14, McIntosh County. About the same time, an old wildcat in section 16-5-6, northern Pontotoc County, was plugged back and recompleted by Pioneer Oil & Gas Co. as a 7-bbl. producer.

One of the outstanding wildcat successes came in December. It was the Shell Petroleum Corp. and others

No. 1 Moelling, section 31-21-2w, between the Lucien field and the town of Lucien in Noble County, and near the Garfield County line. It flowed 1,815 bbls. of oil in nine hours, and potential was estimated at 4,800 bbls. First Wilcox sand was topped at 5,373 feet; total depth, 5,389 feet. It opened up a considerable area to development.

A Garvin County wildcat opened a producing area in section 5-4-3 in August. It was Charles E. Carter and others No. 1 Wood, which pumped 143 bbls. of oil and 60 bbls. of water on initial gauge from Hunton lime at 3,000-18 feet.

In Lincoln County, Amerada Petroleum Corp. and associates completed a pool opener southeast of the Wilzetta area, at No. 1 Zimmerman, section 10-12-5, in August. It had initial production of 320 bbls. of oil, with 212 bbls. of water, from Hunton lime, total depth 4,358 feet. In December, Skelly Oil Co. completed No. 1 Sporn, section 21-17-3, northern Lincoln County wildcat, as a big gasser, and a short time later started another test in the same general area. About the same time, Fleetborn Oil Corp. No. 1 Turner, wildcat, in section 28-17-5, Lincoln County, showed an oil and gas well but was not completed as the year ended.

A small Hughes County producer was completed early in December at Olympic Oil Co. No. 1-A Dunn, wildcat in section 11-7-8, northwest of Holdenville. It flowed 35 bbls. of oil from Senora sand at 1,842 feet, total depth.

Amerada and Stanolind companies completed a small wildcat producer at No. 1 Pratt, section 29-19-5, east of the Ingalls pool in Payne County, early in August. Initial production was 195 bbls. of oil and 75 bbls. of water in 20 hours, from Wilcox sand, total depth 3,802 feet.

A new pool was opened in Seminole County in November at Amerada Petroleum Corp. and others No. 1 Yarhola, section 36-10-7, northwest of the Bethel area. It flowed 235 bbls. of oil in 24 hours, with 30,000,000 feet of gas, from Cromwell sand; total depth, 3,638 feet.

Texas Panhandle Fields

(Continued from Page 126)

a well in section 36, Block M-23, T.C. Railway Survey. It made 400 bbls. per day at total depth of 3,066 feet after shooting the pay from 2,980-3,050 feet.

Considerable construction work was done in the district. Casinghead plants and carbon black plants were erected, and more gathering lines were laid to connect with oil and gas wells. Gas trunk lines out of the district north to commercial centers were increased in size and more pump stations were added to increase the capacity of the lines.

TEXAS PANHANDLE

Summary of Completions in 1936

County—	Comp.	Prod.	Dry	Gas
Carson	57	24,159	1	17
Collingsworth	1	0	0	1
Gray	227	107,561	10	17
Hall	2	0	2	0
Hutchinson	171	70,776	5	14
Moore	79	2,126	1	71
Potter	3	0	0	3
Wheeler	110	49,730	4	38
Total, 1936	650	254,352	23	161

Summary by Months for 1936

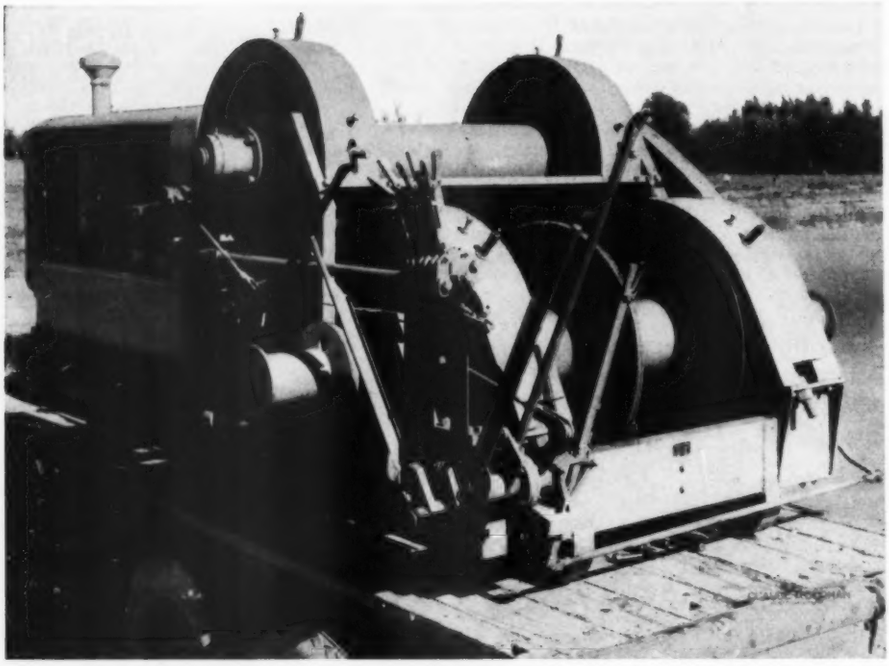
Month—	Comp.	Prod.	Dry	Gas
January	65	24,751	2	16
February	43	15,774	3	11
March	51	24,649	1	15
April	65	34,557	0	15
May	63	20,078	4	19
June	46	14,452	1	10
July	59	18,801	2	17
August	48	16,952	3	10
September	45	23,130	0	7
October	58	24,475	1	14
November	51	13,986	4	16
December	56	22,747	2	11
Total, 1936	650	254,352	23	161
Total, 1935	706	352,671	41	80
Difference	56	98,319	18	81

Oklahoma (Continued)

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
GARFIELD COUNTY:													
Garber and Miscellaneous—													
Daily average	1,944	1,875	1,999	2,078	1,974	1,966	1,925	1,873	1,850	2,310	2,117	2,120	
Month	60,264	54,375	61,969	62,340	61,194	58,980	59,675	58,063	55,500	71,610	63,510	65,720	733,200
LOGAN COUNTY:													
Crescent—													
Daily average	4,330	5,246	5,291	4,763	5,241	5,312	5,764	6,501	8,005	8,725	7,464	8,746	
Month	134,230	152,134	164,021	142,890	162,471	159,360	178,684	201,531	240,150	270,475	223,920	271,126	2,300,992
Langston—													
Daily average	186	156	182	170	94	106	160	162	160	192	159	160	
Month	5,766	4,524	5,642	5,100	2,914	3,180	4,960	5,022	4,800	5,952	4,770	4,960	57,590
Marshall-Lovell—													
Daily average	1,081	1,021	944	1,034	1,113	1,006	741	637	597	680	611	612	
Month	33,511	29,609	30,814	31,020	34,503	30,180	22,971	19,747	17,910	21,080	18,330	18,972	308,647
CARTER COUNTY:													
Healdton—													
Daily average	8,908	8,866	9,231	9,251	9,243	9,236	9,520	9,581	9,611	9,817	9,579	9,772	
Month	276,148	257,114	286,161	277,530	286,533	277,080	295,120	297,011	288,330	304,327	287,370	302,932	3,436,656
Hewitt—													
Daily average	4,487	4,455	4,509	4,514	4,345	4,410	4,558	4,512	4,532	4,565	4,407	4,410	
Month	139,097	129,195	139,779	135,420	134,695	132,300	141,298	139,872	135,960	141,515	132,210	136,710	1,638,051
Sholem-Alechem—													
Daily average	3,691	3,594	3,736	3,632	3,448	3,411	3,488	3,349	3,483	3,323	3,284	3,306	
Month	114,421	104,226	115,816	108,960	106,888	102,330	108,128	103,819	104,490	103,013	98,520	102,486	1,273,097
Tatums-North Tatums—													
Daily average	3,603	3,523	3,558	3,394	3,229	3,216	3,249	3,413	3,441	3,575	4,022	3,991	
Month	111,693	102,167	110,298	101,820	100,099	96,480	100,719	105,803	103,230	110,825	120,660	123,721	1,287,515
Graham-Fox-Wildcat Jim—													
Daily average	3,821	4,189	4,291	4,719	4,212	4,263	4,341	4,362	4,810	5,047	4,844	4,906	
Month	118,451	121,481	133,021	141,570	130,572	127,890	134,571	135,222	144,300	156,457	145,320	152,086	1,640,941
Brock-Miscellaneous—													
Daily average	387	376	331	365	324	319	622	612	626	601	613	606	
Month	11,997	10,904	10,261	10,950	10,044	9,570	19,282	18,972	18,780	18,631	18,390	18,786	176,567
STEPHENS-COTTON COUNTIES:													
Duncan district—													
Daily average	2,343	2,210	2,216	2,240	2,314	2,217	2,232	2,218	2,236	2,089	2,045	2,052	
Month	72,633	64,090	68,696	67,200	71,734	66,510	69,223	68,758	67,080	64,759	61,350	63,612	805,645
Loco-Milroy—													
Daily average	369	380	407	420	456	448	471	491	567	650	694	689	
Month	11,439	11,020	12,617	12,600	14,136	13,440	14,601	15,221	17,010	20,150	20,820	21,359	184,413
Kilgore—													
Daily average	114	111	118	117	116	118	111	101	99	99	106	98	
Month	3,534	3,219	3,658	3,510	3,596	3,540	3,441	3,131	2,970	3,069	3,180	3,038	39,886
Velma-Walters—													
Daily average	817	879	939	829	912	893	920	899	862	894	795	801	
Month	25,327	25,491	29,109	24,870	28,272	26,790	28,520	27,869	25,860	27,714	23,850	24,831	318,503
Walters—													
Daily average	987	1,068	1,119	1,118	1,127	1,152	1,157	1,139	1,148	1,124	1,043	1,067	
Month	30,597	30,972	34,689	33,540	34,937	34,560	35,867	35,309	34,440	34,844	31,290	33,077	404,122
Comanche—													
Daily average	766	763	783	787	737	762	778	813	878	810	904	892	
Month	23,746	22,127	24,273	23,610	22,847	22,860	24,118	25,203	26,340	25,110	27,120	27,652	295,006
Palacine—													
Daily average	92	113	115	110	102	111	110	84	93	101	92	87	
Month	2,852	3,277	3,565	3,300	3,162	3,330	3,410	2,604	2,790	3,131	2,760	3,007	37,188
JEFFERSON COUNTY:													
Daily average	2,032	2,045	2,024	2,061	2,122	2,163	2,167	2,064	2,075	1,956	1,863	1,871	
Month	62,992	59,305	62,744	61,830	65,782	64,890	67,177	63,984	62,250	60,636	55,890	58,001	745,481
GARVIN COUNTY:													
Robberson—													
Daily average	988	1,182	1,258	1,179	1,179	853	1,072	1,286	1,157	1,092	1,113	1,094	
Month	30,628	34,278	38,998	35,370	36,549	25,590	33,232	39,866	34,710	33,852	33,390	33,914	410,377
GRADY COUNTY:													
Knox—													
Daily average	1,487	1,377	1,388	1,475	1,423	1,431	1,488	1,481	1,453	1,447	1,387	1,402	
Month	46,097	39,933	43,028	44,250	44,113	42,930	46,128	45,911	43,590	44,857	41,610	43,462	525,909
MARSHALL COUNTY:													
Daily average	323	560	345	404	442	436	322	420	397	359	366	358	
Month	10,013	16,240	10,695	12,120	13,702	13,080	9,982	13,020	11,910	11,129	10,980	11,098	143,969
CADDO COUNTY:													
Cement—													
Daily average	1,484	1,476	1,404	1,429	1,395	1,489	1,971	2,220	2,093	2,008	1,892	1,916	
Month	46,004	42,804	43,524	42,870	43,245	44,670	61,101	68,820	62,790	62,248	56,760	59,396	634,232
TILLMAN COUNTY:													
Daily average	529	558	464	519	405	470	529	491	512	468	534	529	
Month	16,399	16,182	14,384	15,570	12,555	14,100	16,399	15,221	15,390	14,508	16,020	16,399	183,127
COMANCHE COUNTY:													
Daily average	27	4	11	15	8	11	12	11	14	12	7	8	
Month	837	116	341	450	248	330	372	341	420	372	210	248	4,285
JACKSON COUNTY:													
Daily average	655	788	828	898	942	927	1,316	1,566	1,965	1,949	1,832	1,837	
Month	20,305	22,852	25,668	26,940	29,202	27,810	40,796	48,546	58,950	60,419	54,960	56,947	473,395
CLEVELAND COUNTY:													
Moore—													
Daily average	1,253	1,373	1,223	319	781	835	1,336	1,071	883	2,082	2,204	4,378	
Month	38,898	39,817	37,913	9,570	24,211	25,050	41,416	33,201	26,490	64,542	66,120	135,563	542,891
Daily average	491,495	509,473	530,953	557,682	560,372	559,975	543,689	571,903	558,654	563,223	558,108	579,443	548,854
Total 1936	15,236,345	14,774,717	16,459,543	16,730,460	17,371,532	16,799,250	16,854,359	17,728,993	16,759,620	17,459,913	16,743,240	17,962,733	200,880,705
Total 1935	14,978,642	13,717,900	15,456,786	15,400,050	16,071,051	15,728,730	16,048,080	14,940,636	14,418,870	16,529,915	15,224,280	15,081,934	182,596,874
Total 1934	15,053,166	13,345,276	15,166,471	15,378,390	16,068,199	16,135,650	15,661,200	15,069,348	13,980,030	14,155,592	14,020,950	14,617,740	178,652,012
Total 1933	12,575,832	12,592,132	15,479,726	11,746,170	13,552,797	14,360,910	18,406,374	18,802,382	16,603,890	15,031,032	14,364,030	14,835,174	178,356,449
Total 1932	13,664,149	11,806,190	12,998,796	12,718,020	12,169,420	12,757,230	13,030,571	12,743,666	11,705,280	11,916,811	11,340,930	11,637,171	149,487,234

For Economy and Dependable Service.... Make
HOPPER PORTABLE HOISTS AND DRAW WORKS



A Hopper Type "G" Draw Works and Drilling Unit being used in the Mid-Continent for heavy duty service. Its general specifications are given below.

TYPES AND SIZES

Hopper Portable Hoists and Draw Works, supplied with or without Sand Reel and Rotary Drive Attachments, are made in different sizes from 36 h.p. to 300 h.p. The standard types are:

Type "I":—For servicing to 3000′ of 2½″ tubing or 6000′ of rods.

Type "H":—For servicing to 6000′ of 3″ tubing. For drilling to 2000′.

Type "G":—For servicing to 10,000′ of 3″ tubing. For drilling to 4000′.

Type "GD":—Especially built for drilling to 5000 feet.

When equipped with rotary drive attachment, the Hopper Hoist provides a complete Portable Draw Works that will meet requirements for all kinds of repair work.

Special types are made to meet any conditions and built to specifications.

HOIST SPECIFICATIONS

	MAIN DRUM			
	Type "I"	Type "H"	Type "G"	Sand Reel Drum*
Construction	Alloy Cast Steel-2 piece			Fabricated steel
Drum Flange—Dia.	30″	38″	42″	30″ to 36″
Drum Core	13¼″	13¼″	13¼″	13¼″
Drum between flanges	33½″	44″	46″	33″ to 55″
Brakes	1 or 2	2	2	1 or 2
Diameter and width	29″x6″	37″x6″	41″x8″	6″ to 8″ wide
Line Capacity of Cable	2900′-¾″	6540′-¾″	8550′-¾″	5160′ to 12000′ 9/16″
Center flange	Adjustable and removable			
Hopper Friction Clutch				

*Sand Reel Drums are also furnished to specifications with one or two brakes. The one shown above is an example.

TRANSMISSION

Six or Four speeds forward and one reverse.

Gears, heat treated and hardened.

Bearings, roller bearings throughout.

Positive lock on gear shift control of transmission—gears constant mesh.

SPEEDS AND PULLS

The prime mover naturally governs the speeds and pulls developed. Typical examples, however, are given below for three types of Hopper Hoists.

Gear	R. P. M. of Drum	Line Speeds Bare Drum F. P. M.	Single Line Pull Bare Drum In Lb.
Type "I"—With 65 H. P. Engine			
1	25	93	22,800
2	52	195	11,000
3	95	355	6,000
4	160	600	3,560
Type "H"—With 112 H. P. Engine			
1	25	93	35,000
2	45	169	19,350
3	84	315	10,400
4	151	565	5,800
Type "G"—With 152 H. P. Engine			
1	39	146	31,000
2	66	246	18,400
3	97	362	12,500
4	165	617	7,300

Standard Equipment on Your Lease

•

Well Servicing
All Kinds of Repair Work
Redrilling
Drilling to 5000 Feet

With Complete Portability

Hopper equipment provides not only a means for servicing wells to 10,000 feet but will take care of any necessary redrilling or other repair work requiring rotary. Hopper Portable Draw Works will drill new wells to a depth of 5000 feet, and yet the portability of the equipment insures ready transportation to any location. Hopper Hoists and Draw Works are self-contained units carrying their own power and can be backed up to the derrick floor and put immediately to work.

All Hoists are of steel construction with alloy steel shaft and with roller bearings throughout. They can be made for gas or Diesel engine or for electric motor drive and designed for any make of engine or motor specified by the purchaser. They can be furnished self-propelled; mounted on tractor or truck with power take-off from tractor or truck engine; mounted on tractor, truck or trailer with engine as a unit; or built on skids with engine as unit for mounting to trucks or trailers.

Our Nearest Representative will be glad to furnish Complete Specifications and Advice on the Equipment best suited to Your Requirements.

Mid-Continent and Gulf Coast Sales

AMERICAN IRON AND MACHINE WORKS COMPANY

OKLAHOMA CITY, OKLA. — SEMINOLE, OKLA.
HOUSTON, TEXAS — KILGORE, TEXAS

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PETROLEUM EQUIPMENT CO.

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LOS ANGELES, CALIFORNIA

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R. J. EICHE

c/o Hopper Machine Works, Inc.
BAKERSFIELD, CALIFORNIA

South America

GEO. S. FLANDERS — MARACAIBO

There is a HOPPER PORTABLE HOIST for every need

Annual Review

26 OIL AND GAS FIELDS ARE ADDED TO COASTAL TEXAS-LOUISIANA

By F. L. SINGLETON

Operators along the Gulf Coast district during 1937 witnessed the discovery of 17 new pools and nine gas fields and the development of important extensions and deeper pay horizons in many of the older producing fields. The lower Gulf Coast, or Corpus Christi, district is treated elsewhere in the review of Southwest Texas discoveries of the year.

Six of the 26 discoveries were in Coastal Louisiana while the rest were located along the Texas Upper Coast. Those in Louisiana included Bayou Mallet, Acadia Parish; Big Lake, Cameron Parish; Cankton, St. Landry Parish; Charenton, St. Mary Parish: Valentine, Lafourche Parish and South Jennings in Jefferson Davis Parish. Those on the Texas side were, Lockridge, Brazoria County; Cotton Lake and Seabreeze, Chambers County; Green Lake, and Hitchcock Galveston County; Clinton and Satsuma, Harris County; Amelia and West Beaumont, Jefferson County; South Bay City and Hawkinsville, Matagorda County; Lakeview, Magnet, Five Corners and Spanish Camp in Wharton County, Segno, Polk County; Silsbee, Hardin County: Heyser, Calhoun County; Hughes Victoria County and Grapeland, Houston County.

Coastal Louisiana and the Texas Coast both showed an increase in completed wells over the previous year. Coastal Louisiana recorded 392 wells with a combined rated initial production of 143,045 bbls. Of these 257 were oil wells, 128 dry holes and seven gas wells. There were 1,226 wells completed in the Texas district having a combined rated initial production of 375,217 bbls., 942 were oil wells, 284 abandonments and 40 gas wells. The total number of wells completed in the two districts is an increase of 190 over 1935 and an increase in the rated initial production of 44,479 bbls.

Lockridge District

The Lockridge field, Brazoria County, discovered in March as a wet gas field by the completion of Gulf Oil Corp. No. 1 Fairfield from a sand at 6,264-6,725 feet, was converted into an oil field when the same company's No. 2 Wilkes and Smith located in the John W. Hall Survey, flowed 465 bbls. of 26.9 gravity oil per day through a quarter inch choke with working pressure 1,850 pounds. It was completed in the Oligocene sand at a plugged back depth of 6,368 feet. The company has two wells located north and southwest which are nearing the pay horizon, while Shell Petroleum Corp. No. 1 Prison Farm, 2,000 feet east of the discovery well is nearing a critical depth.

Glenn H. McCarthy moved a rig 2½ miles northwest of a previous test which had shown production possibilities for the Cotton Lake Prospect, Chambers County and completed No. 1 Kilgore in the Marginulina sand from 6,296-6,308 feet for an initial production of 13 bbls. of 29 gravity oil per hour through an eighth-inch choke. The field centers in the J. Townsend Survey and at the end of the year approximately 11 wells had been completed, four of which were dry holes. Production is from a sand section which has very

GULF COAST

UPPER COASTAL FIELDS

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
AMELIA:													
Daily average	.....	119	164	175	247	347	671	823	945	1,135	968	960	
Month	.....	3,453	5,088	5,246	7,653	10,409	20,801	25,513	28,350	35,185	29,040	29,760	200,498
ANAHUAC:													
Daily average	5,013	4,990	5,991	6,864	8,307	8,427	7,316	8,100	7,674	8,205	7,561	8,492	
Month	155,399	144,714	185,718	205,918	257,512	252,812	226,796	251,100	230,220	254,355	234,391	263,252	2,662,187
ARRIOLA:													
Daily average	1,353	1,304	1,391	1,392	1,171	1,087	1,030	1,037	845	862	776	780	
Month	41,947	37,812	43,124	41,762	36,306	32,608	31,930	32,147	25,350	26,722	23,280	24,180	397,168
BARBERS HILL:													
Daily average	17,516	15,949	17,218	17,065	17,548	15,237	14,558	14,522	12,683	12,841	12,279	12,714	
Month	542,992	462,525	533,754	511,953	543,896	457,113	451,298	451,212	380,790	398,071	368,370	394,134	5,496,198
BATSON:													
Daily average	2,151	2,152	2,021	2,096	1,945	2,028	1,980	1,879	1,789	1,692	1,679	1,017	
Month	66,677	62,404	62,655	62,877	60,297	60,837	61,380	58,249	53,670	52,452	50,370	31,527	683,395
BIG CREEK:													
Daily average	1,051	1,004	1,070	1,029	1,092	1,073	1,153	1,252	1,170	1,146	990	938	
Month	32,585	29,118	33,172	30,875	33,855	32,194	35,743	38,812	35,100	35,526	29,700	29,078	395,758
BLUE RIDGE:													
Daily average	1,589	1,683	1,637	1,739	1,794	1,954	1,590	1,575	1,582	1,819	1,225	1,331	
Month	49,254	48,806	50,749	52,165	55,611	58,616	49,290	48,825	47,460	56,389	36,750	41,261	595,176
BOLING:													
Daily average	799	758	758	1,034	998	1,127	861	900	985	1,081	1,057	1,120	
Month	24,765	22,936	23,496	31,014	30,933	33,805	26,691	27,900	29,550	33,511	31,710	34,720	351,031
BUCKEYE:													
Daily average	194	167	205	230	185	216	224	198	204	207	196	105	
Month	6,018	4,846	6,357	6,907	5,731	6,486	6,944	6,138	6,120	6,417	5,880	3,255	71,099
CLAY CREEK:													
Daily average	1,148	1,102	1,084	1,064	1,093	1,084	1,209	1,271	1,111	1,124	1,030	1,072	
Month	35,584	31,955	33,607	31,913	33,887	32,514	37,479	39,401	33,330	34,844	30,900	33,232	408,646
CLEVELAND:													
Daily average	844	838	959	965	926	879	820	825	746	847	608	603	
Month	26,168	24,305	29,726	28,953	28,703	26,377	25,400	25,575	22,380	26,257	18,240	18,693	300,777
CONROE:													
Daily average	38,246	40,403	41,551	43,481	43,722	43,987	41,959	42,140	40,971	39,879	35,689	36,814	
Month	1,185,622	1,171,684	1,288,081	1,304,427	1,355,385	1,319,603	1,300,729	1,306,340	1,229,130	1,236,218	1,070,670	1,141,234	14,909,126
DAMON MOUND:													
Daily average	479	478	475	482	501	612	645	704	689	672	619	471	
Month	14,845	13,865	14,722	14,458	15,534	18,368	19,995	21,824	20,670	20,832	18,570	14,601	208,284
DICKINSON:													
Daily average	1,435	1,557	1,619	1,825	2,025	2,578	2,083	2,115	1,945	1,975	2,116	1,855	
Month	44,489	45,157	50,186	55,054	62,772	77,332	64,573	65,565	58,350	61,225	63,480	57,505	705,688
ESPERSON:													
Daily average	1,330	1,281	1,048	1,549	1,777	1,879	1,971	2,124	2,106	2,161	1,546	1,755	
Month	41,226	37,145	32,491	46,466	55,083	56,379	61,101	65,844	63,180	66,991	46,380	54,405	626,691
FANNETT:													
Daily average	1,000	960	964	881	870	898	922	922	848	891	843	781	
Month	31,004	27,843	29,887	26,435	26,974	26,931	28,582	28,587	25,440	27,621	25,290	24,441	329,003
FAIRBANKS:													
Daily average	.....	.....	.....	.....	.....	81	.....	68	62	156	220	291	
Month	.....	.....	.....	.....	.....	2,420	.....	2,108	1,860	4,836	6,600	9,021	26,845
GILLOCK:													
Daily average	323	351	359	455	496	538	627	626	599	809	948	968	
Month	10,017	10,176	11,126	13,647	15,379	16,141	19,437	19,406	17,970	25,079	28,440	30,008	216,826
GOOSE CREEK:													
Daily average	2,616	2,695	2,872	2,942	2,826	2,687	2,600	2,534	2,569	2,626	2,383	2,425	
Month	81,092	78,153	89,036	88,266	87,603	80,609	80,600	78,554	77,070	81,406	71,490	75,175	969,054
HANKAMER:													
Daily average	1,722	2,090	1,965	2,298	2,312	2,237	2,319	2,433	2,187	2,192	1,794	1,805	
Month	53,386	60,612	60,911	68,934	71,674	67,112	71,889	75,423	65,610	67,952	53,820	55,955	773,278
HARDIN:													
Daily average	345	345	365	362	365	365	357	337	341	349	359	363	
Month	10,691	10,007	11,317	10,862	11,313	10,948	11,067	10,447	10,430	10,819	10,770	11,253	129,924
HASTINGS:													
Daily average	4,826	5,173	5,496	5,918	6,247	7,334	7,094	6,838	6,477	8,633	7,045	7,858	
Month	149,602	150,014	170,374	177,538	193,653	220,023	219,914	211,978	194,310	267,623	211,350	243,598	2,409,977

(Continued on Next Page)

little thickness and the producing limits are not expected to be extended over a large area.

In the eastern part of the county, Sun Oil Co. No. 1 Acom opened the Seabreeze field in November when it flowed 24 bbls. of distillate per day through an eighth-inch choke with tubing pressure 2,950 pounds. Production is from the Oligocene sand bottomed at a plugged back depth of 8,190 feet. The well is situated on a large block in section 103, T.&N.O. Survey.

The Greens Lake field, southwestern Galveston County was opened in July by Sun Oil Co. No. 2 Hughes which opened production from the basal Pliocene sand at 3,610-20 feet, when it flowed 180 bbls. per day. Gravity of the oil tested 25.84. Development has proven the sand condition very erratic and from a total of five wells drilled, only two have been productive. The field is located in the W. C. M. Baker Survey.

On the northeast outskirts of the Houston city limits, Stanolind Oil & Gas Co. opened the Clinton field as a high-pressure wet gas field, by the completion of No. 1 Angelo Candelari in November. The well blew out from a depth of 8,101 feet which is believed from the Cockfield section, although the determination is not definite. Due to the high pressures encountered, the well was completed with the drill stem in the hole and only additional development will ascertain the importance of this area. The well is situated in the Reels and Trobough Survey.

Amelia an Important Find

One of the most important fields opened during the past year is the Amelia field, Jefferson County located on the outskirts of the Beaumont city limits centering in the C. Williams Survey where Humble Oil and Refining Co. No. 1 M. E. Langham flowed 20 bbls. of 29.2 gravity oil per hour through a quarter-inch choke with tubing pressure 675 pounds and casing pressure 800 pounds. Production is from the Frio sand bottomed at a plugged back depth of 6,777 feet. Since its discovery in January the company has carried on an orderly development program which has developed the field in a southwest-northeast direction, the longest extension being made by the company's No. 1 Pevito which extended production one mile to the southwest. What was first considered a north extension to the field, has proven to be a separate structure and is now called the West Beaumont field which was opened in March by Glenn H. McCarthy's No. 1 Longe, a distillate producer from the Marginulina sand from 5,835-55 feet. This area is located approximately 2½ miles northwest of Amelia in the H. Williams Survey and several oil wells have been completed in the Marginulina sand from 5,700 to 6,100 feet.

To the southwest, Shell Petroleum Corp. No. 1 Carpenter, opened the Nome field in July when it was completed in the Marginulina sand at a plugged back depth of 6,055 feet for an initial production of 574 bbls. per day through a quarter-inch choke with tubing pressure 975 pounds and casing pressure 575 pounds. Gravity of the oil tested 26.9. The field centers around the M. E. Pivoto and J. W. Kirby Surveys. The majority of the acreage is controlled by Shell Petroleum Corp. and Sun Oil Co. who have completed eight producing wells.

Southeast of Bay City, Matagorda County, Hamman Exploration Co. opened a deeply seated field by the completion of No. 1 Mrs. May Cleveland in March. The hole was drilled to a depth of 9,428 feet and it was completed in the Frio sand through perforated liner from 9,361½-70 feet for an initial production of 230 bbls. per day through a three-sixteenths inch choke with tubing pressure 850 pounds and casing pressure 1,100 pounds. Approximately a half mile north of the discovery well, the same operator was preparing to test a deeper sand bottomed at 9,575 feet. Both sands are reported to be the Frio. Gravity of the oil from the discovery well tested 33.8. Location is in the Elesha Hall Survey.

On the east flank of the Hawkinsville dome, Matagorda County, Sun Oil Co. No. 1 Craig drilled through an 'overhang" and was completed through perforated casing from 5,150-60 feet. It flowed 8 bbls. per hour for a few hours, but the pressure soon declined and it is now on the pump. The salt was encountered at 6,077 feet and bottomed at 6,158 feet. Same company is drilling No. 2 Craig located 2,100 feet southeast of No. 1. Location is in the T. Williams Survey.

Good Results in Wharton

Wharton County was the scene of much wildcatting activity which opened three gas fields and one oil pool. The oil field is located in the southern part of the county on the Magnet Prospect centering in the J. Smith and H. McKenzie Surveys, and was opened by Texas Co. No. 1 fee which was first completed through perforated casing from 5,552-61 feet. Due to mechanical trouble and the intrusion of salt water the well was finally completed for an initial production of 85 bbls. of oil per day and 125 bbls. of salt water, after a series of perforations and squeeze out cement jobs. P. B. Watson drilled his No. 1 Sweet, an offset which was

Gulf Coast Upper District (Continued)

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
HIGH ISLAND:													
Daily average	6,675	7,090	6,593	6,398	6,195	5,912	5,852	5,699	5,291	5,413	3,690	3,963	
Month	206,929	205,613	204,387	191,944	192,049	177,357	181,412	176,669	158,730	167,803	110,700	122,853	2,096,446
HULL:													
Daily average	5,748	5,587	5,738	5,548	5,265	5,443	5,140	5,245	5,210	5,387	5,444	5,261	
Month	178,184	162,021	177,874	166,436	163,212	163,294	159,340	162,595	156,300	166,997	163,320	163,091	1,982,664
HUMBLE:													
Daily average	3,444	3,309	3,439	3,429	3,561	3,637	3,659	3,689	3,635	3,088	3,178	3,172	
Month	106,761	95,963	106,603	102,877	110,394	109,106	113,429	114,359	109,050	95,728	95,340	98,332	1,257,942
KITTRELL:													
Daily average	1,078	1,081	1,035	1,027	979	1,062	1,033	1,072	820	979	990	825	
Month	33,414	31,346	32,082	30,803	30,346	31,865	32,023	33,232	24,600	30,349	29,700	25,575	365,335
LIBERTY:													
Daily average	706	667	634	689	703	687	735	709	708	719	682	724	
Month	21,886	19,347	19,657	20,674	21,799	20,605	22,785	21,979	21,240	22,289	20,460	22,444	255,165
LIVINGSTON:													
Daily average	2,755	2,714	2,994	3,063	3,059	3,312	2,984	2,929	2,886	2,934	2,982	3,112	
Month	85,409	78,703	92,811	91,886	94,826	99,366	92,504	90,899	86,580	90,954	89,460	96,472	1,089,870
LOST LAKE:													
Daily average	233	224	234	235	235	237	231	189	161	148	149	156	
Month	7,227	6,499	7,257	7,052	7,288	7,104	7,151	5,859	1,313	4,588	4,470	4,836	70,644
LOUISE:													
Daily average	1,450	1,405	1,421	1,469	1,514	1,536	1,475	1,445	1,313	1,489	1,531	1,563	
Month	44,946	40,742	44,056	44,068	46,937	46,087	45,725	44,795	39,390	46,159	45,930	48,453	537,288
MANVEL:													
Daily average	5,000	7,179	7,377	10,121	9,575	8,637	8,411	8,596	7,725	8,273	7,174	9,304	
Month	155,004	208,194	228,682	303,633	296,822	259,103	160,741	266,476	232,750	256,463	215,220	288,424	2,971,512
MARKHAM:													
Daily average	1,164	1,164	1,424	1,386	1,402	1,413	1,273	1,410	1,781	1,817	1,780	1,693	
Month	36,080	33,754	44,142	41,557	43,466	42,398	39,463	43,710	53,430	56,327	53,400	52,576	540,323
MYKAWA:													
Daily average	3,477	3,570	4,333	3,967	3,224	3,535	3,275	3,314	3,230	2,579	2,052	2,329	
Month	107,783	103,536	134,325	119,014	99,940	106,042	101,525	102,734	96,900	79,949	61,500	72,199	1,185,447
NOME:													
Daily average	.....	.....	.....	.....	.....	.....	63	133	263	260	410	576	
Month	.....	.....	.....	.....	.....	.....	1,890	4,123	7,890	8,060	12,300	17,856	52,119
NORTH DAYTON:													
Daily average	143	142	142	142	140	151	166	165	160	161	141	125	
Month	4,437	4,114	4,401	4,266	4,342	4,521	5,146	5,115	4,800	4,991	4,230	3,875	54,238
OLD OCEAN:													
Daily average	422	417	417	421	418	395	412	400	411	554	533	489	
Month	13,078	12,126	12,924	12,624	12,959	11,851	12,772	12,400	12,330	17,174	15,990	15,159	161,387
ORANGE:													
Daily average	693	708	770	651	668	666	706	683	692	724	702	706	
Month	21,487	20,536	23,873	19,531	20,707	19,979	21,886	21,173	20,760	22,444	21,060	21,886	255,322
ORCHARD:													
Daily average	549	625	577	504	538	552	711	565	645	608	483	514	
Month	17,015	18,121	17,889	15,119	16,674	16,563	22,041	17,515	19,350	18,848	14,490	15,934	209,558
PICKETT RIDGE:													
Daily average	688	908	1,215	1,649	2,008	2,246	2,491	2,627	2,322	2,502	1,797	1,552	
Month	21,332	26,331	37,662	49,465	62,251	67,383	77,221	81,437	69,660	77,562	53,910	48,112	672,326
PIERCE JUNCTION:													
Daily average	3,969	3,698	2,988	3,142	3,360	3,027	3,623	3,589	3,581	4,005	4,055	4,329	
Month	123,035	107,243	92,626	94,265	104,164	90,808	112,313	111,259	107,430	124,155	121,650	134,199	1,323,147
PORT NECHES:													
Daily average	1,815	1,744	1,800	1,801	1,739	1,674	1,554	1,533	1,426	1,388	1,016	1,031	
Month	56,269	50,579	55,803	54,032	53,906	50,217	48,174	47,523	42,780	43,028	30,480	31,961	564,753
RACCOON BEND:													
Daily average	4,875	4,762	4,866	5,923	5,839	5,583	5,597	5,542	5,236	5,448	5,063	5,137	
Month	151,121	138,095	150,844	177,688	181,005	167,494	173,507	171,802	157,080	168,888	151,890	159,247	1,948,661
SARATOGA:													
Daily average	880	881	896	1,012	1,084	1,091	1,043	1,088	1,060	1,070	981	905	
Month	27,276	25,544	27,772	30,352	33,608	32,735	32,333	33,728	31,800	33,170	29,430	28,055	365,803
SOUR LAKE:													
Daily average	1,732	1,722	1,671	1,671	1,551	1,633	1,539	1,586	1,572	1,533	1,523	1,519	
Month	53,696	49,940	51,804	50,134	48,084	48,984	47,709	49,166	47,160	47,523	45,690	47,089	588,979
SOUTH BAY CITY:													
Daily average	.....	.....	173	160	159	152	141	125	147	139	109	104	
Month	.....	.....	5,361	4,796	4,926	4,567	4,371	3,875	3,410	4,309	3,270	3,224	42,103
SOUTH HOUSTON:													
Daily average	909	832	1,330	1,715	2,357	2,496	3,782	4,522	4,405	4,516	4,600	5,296	
Month	28,175	24,124	41,232	51,452	73,064	74,873	117,242	140,182	132,150	139,996	138,000	164,176	1,124,666

(Continued on Next Page)

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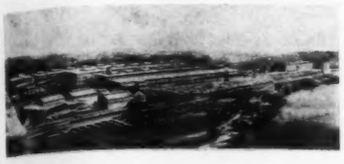

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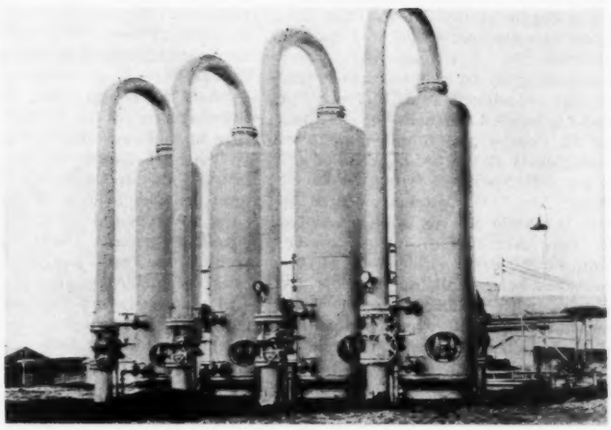

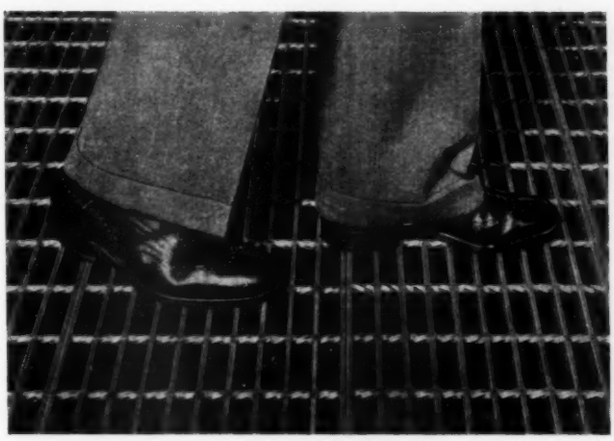

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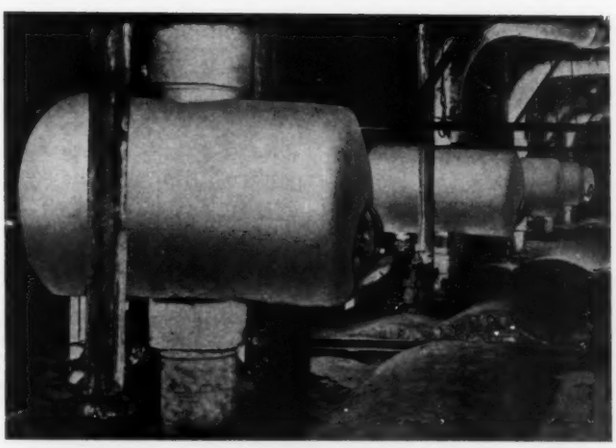

FRICK-REID SUPPLY CORPORATION

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abandoned after it blew out. Texas Crusader and C. E. McDonald are engaged in drilling one well which will prove the value of this area. West of the Withers field, Texas Co. opened the Five Corners field by the completion of No. 1-B Pierce, for a gas well from a sand at 5,500 feet. This field was discovered in June and three other wells have been completed, one being a wet gasser.

At the Lakeview Prospect, Smith and McDannald No. 1 Mitchell was completed as a dry gasser at a plugged back depth of 3,283 feet. This was an old well drilled in 1933 and temporarily abandoned after drilling to a depth of 6,875 feet. The fuel from the discovery well was used in drilling No. 1 Priesmeyer, located one-half mile to the northwest and it was abandoned at 6,615 feet. The field is located northeast of the town of El Campo and 6 miles north of the Pickett Ridge field. East of the town of Spanish Camp, Felmont Corp. No. 1 G. Mitchell located in the D. Wade Survey was completed in December for an initial production of 2,000,000 cubic feet of gas daily and a small amount of distillate, with tubing pressure 1,350 pounds. The well was scheduled to be a deep test and reached a depth of 8,085 feet where mechanical trouble resulted in the well being plugged back and completed at its present depth. The operators have moved the rig approximately a half mile south for No. 1 Lyle Logue, a deep test.

Fairbanks Prospect Proven

Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 1 Dopslauf located on the Fairbanks Prospect, 14 miles northwest of Houston in the W. C. R. R. Survey, Harris County flowed 128 bbls. of 44.8 gravity oil in 24 hours through a quarter-inch choke from the Cockfield sand through perforated casing at 6,829-33 feet. The discovery was made in June and to date three producers have been completed.

Shell Petroleum Corp. No. 1 Maco Stewart proved the Hitchcock Structure in southwestern Galveston County when it flowed 23 bbls. of 34.4 gravity oil in 24 hours through a quarter-inch choke with tubing pressure 1,950 pounds and casing pressure 2,000 pounds. Due to mechanical trouble the well has been plugged back to workover and it will be several months before the potentialities of this strike is known. It is located in the J. Spillman Survey and holds the distinction of being the deepest well ever drilled on the Texas Gulf Coast, reaching a depth of 10,460 feet where the drill stem became stuck.

Coast Petroleum Co. No. 3 Maco Stewart gave the south extension area of the Dickinson field, Galveston County its first oil production by making 600 bbls. of oil per day through a quarter-inch choke from the Frio sand through perforated casing at 8,535-45 feet. This area has become the most active section of the field which recently received a second producing sand by Pan American Producing Co. No. 1 Craig, completed in an 8,300-foot sand.

Another distillate field, receiving its first oil production was the Ace field, southern Polk County where Dick Schwab No. 1-A Kirby Lumber Co. flowed 349 bbls. of 40.5 gravity oil through a quarter-inch choke from the Cockfield sand bottomed at 4,816 feet. It is located a half mile southeast of the same operator's distillate well completed in 1933.

On the Conroe Trend

What may prove to be the outstanding discoveries of the year were opened along the "Conroe Trend" in Polk and Hardin counties. In the southeastern part of Polk County J. K. Dorrance and others No. 1 Sarah Wings was completed in the upper Cockfield sand bottomed at 5,194 feet and flowed 511 bbls. per day through a quarter-inch choke with casing pressure 1,600 pounds and tubing pressure 1,200 pounds. The field is situated east of the Ace field in section 13, I.&G.N. Survey. The majority of the acreage is controlled by Gulf Oil Corp. and Republic Production Co.

In the northwestern part of Calhoun County, Humble Oil & Refining Co. opened commercial production at the Heyser field by the completion of No. 2 P. H. Welder, completed in the Oligocene sand through perforated casing from 5,465-70 feet, for an initial production of 125 bbls. per day. Gravity of the oil tested 33.2. Same company's No. 3-A Welder gave the field its second producing horizon when it flowed oil from the Heterostegina at 4,876 feet. Seventeen wells have been completed by Humble Oil & Refining Co. and Portilla Oil Co. The field was discovered in May and is located in the Maria Rios Survey No. 1.

In the northeastern part of Hardin County, Republic Production Co. and Houston Oil Co. opened the Silsbee field in December, brought about by

Texas Upper District (Continued)

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Tl. 1936 (bbls.)
SPINDLETOP:													
Daily average	2,176	2,242	2,486	2,689	2,583	2,262	2,212	2,320	2,286	2,179	2,047	2,115	
Month	67,514	65,016	77,062	80,668	80,076	67,868	68,572	71,920	68,580	67,549	61,410	65,565	841,900
SUGARLAND:													
Daily average	5,580	5,580	5,580	5,580	5,580	5,213	4,795	4,829	3,957	3,965	2,778	3,836	
Month	172,984	161,822	172,984	167,409	172,983	156,382	148,645	149,699	118,710	122,915	83,340	118,916	1,746,789
THOMPSON:													
Daily average	6,305	6,425	6,398	10,335	10,181	10,068	9,963	9,961	9,372	10,191	7,484	7,916	
Month	195,459	186,329	198,333	310,041	315,608	302,049	308,853	308,791	281,160	315,921	224,520	245,396	3,528,733
TOMBALL:													
Daily average	6,305	6,425	6,398	7,329	7,538	7,367	7,433	7,297	7,398	7,535	7,232	7,246	
Month	195,459	186,329	198,333	219,873	233,679	221,001	230,423	226,207	221,940	233,585	216,960	224,626	2,608,415
TURTLE BAY:													
Daily average	82	156	236	162	38	426	600	586	514	576	581	608	
Month	2,546	4,521	7,313	4,857	1,177	12,781	18,600	18,166	15,420	17,856	17,430	18,848	139,515
VAN VLECK:													
Daily average	341	438	632	836	849	1,434	1,742	2,012	1,764	1,831	2,046	1,805	
Month	10,567	12,705	19,595	25,089	26,313	43,019	54,002	62,372	52,920	56,761	61,380	55,955	480,678
WEST COLUMBIA:													
Daily average	2,361	2,372	2,341	2,001	1,721	1,561	2,349	2,385	2,292	2,257	2,201	1,413	
Month	73,188	68,785	72,574	60,025	53,354	46,832	72,819	73,935	68,760	69,967	66,030	43,803	770,072
WITHERS:													
Daily average	33	66	185	458	652	712	747	857	835	894	902	1,028	
Month	1,023	1,917	5,732	13,736	20,215	21,358	23,157	26,567	24,050	27,714	27,060	31,868	224,397
COTTON LAKE:													
Daily average	.....	.....	.....	11	.....	.....	.....	.....	123	216	396	371	
Month	.....	.....	.....	332	.....	.....	.....	.....	3,690	6,696	11,880	11,501	34,099
MISCELLANEOUS:*													
Daily average	183	180	164	146	137	425	295	283	324	385	526	462	
Month	5,669	5,217	5,086	4,394	4,251	12,762	6,355	8,773	9,720	11,935	15,790	14,322	104,274
Daily average	158,355	164,013	169,952	179,525	181,299	181,200	177,928	180,645	171,939	177,064	159,439	165,712	172,293
Total 1936	4,909,001	4,756,377	5,268,512	5,385,780	5,620,269	5,435,990	5,515,768	5,599,983	5,158,173	5,488,984	4,783,181	5,137,086	63,059,104
Total 1935	4,690,021	4,187,176	4,738,908	4,536,400	4,602,142	4,919,970	4,733,704	4,581,552	4,557,780	4,737,792	4,609,628	4,972,679	55,887,752

*Miscellaneous fields and their total production in 1936 were: Ace, 29,425 bbls.; Allen, 3,594 bbls.; Beaulah, 393 bbls.; Brenham, 7,243 bbls.; Eureka, 4,063 bbls.; Green Lake, 23,166 bbls.; Hawkinsville, 2,466 bbls.; Huntington, 1,286 bbls.; Nash, 14,304 bbls.; San Felipe, 3,125 bbls.; Shepherds Mott, 1,011 bbls.; Five Corners, 925 bbls.; Magnet, 3,707 bbls.; Lockridge, 2,254 bbls.; Sea Breeze, 759 bbls.; Clinton, 2,285 bbls.; Silsbee, 3,348 bbls.; Rockland, 920 bbls. Total, 104,274 bbls.

Texas

LOWER DISTRICT

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Tl. 1936 (bbls.)
BALDWIN:													
Daily average	734	771	848	829	808	810	1,129	528	487	459	457	465	
Month	22,750	22,357	26,286	24,867	25,044	24,304	34,999	16,368	14,610	14,229	13,710	14,415	253,939
BENTONVILLE:													
Daily average	.....	.....	.....	.....	183	153	291	311	461	547	590	448	
Month	.....	.....	.....	.....	5,057	4,586	9,021	9,641	13,830	16,957	17,700	13,888	90,680
CAESAR:													
Daily average	1,058	1,111	1,182	1,070	1,001	993	799	786	711	643	689	659	
Month	32,794	32,214	36,644	32,104	31,035	29,795	24,769	24,366	21,330	19,933	20,670	20,429	326,083
COLETO CREEK:													
Daily average	705	697	712	778	827	819	779	749	735	735	693	734	
Month	21,851	20,218	22,070	23,336	25,633	24,565	24,149	23,219	22,050	22,785	20,790	22,754	273,420
DIRKS:													
Daily average	4,500	4,112	5,267	5,562	5,616	5,521	4,963	4,948	4,549	4,416	3,507	3,931	
Month	139,504	119,249	163,273	166,855	174,099	165,624	153,853	153,388	136,470	136,896	105,210	121,861	1,736,282
FLOUR BLUFF:													
Daily average	.....	.....	.....	.....	.....	.....	80	135	133	393	776	1,381	
Month	.....	.....	.....	.....	.....	.....	2,480	4,185	3,990	12,183	23,280	42,811	88,929
GRAYBURG:													
Daily average	11	19	35	21	16	13	8	3	7	13	16	8	
Month	345	553	1,081	636	492	383	248	93	210	403	480	248	5,172
GRETA:													
Daily average	14,874	15,626	16,103	17,268	16,458	15,687	15,198	15,197	14,992	14,839	14,071	12,819	
Month	461,091	453,152	499,196	518,034	510,196	470,614	471,138	471,107	449,760	460,009	422,130	397,389	5,583,816
HEYSER:													
Daily average	.....	.....	.....	.....	20	126	131	206	460	766	1,356	1,014	
Month	.....	.....	.....	.....	622	3,776	4,061	6,386	13,800	23,746	40,680	31,434	124,505
KEERAN:													
Daily average	303	286	294	290	313	312	316	321	268	313	285	292	
Month	9,396	8,297	9,111	8,707	9,708	9,365	9,796	9,951	8,040	9,703	8,550	9,052	109,676

(Continued on Page 143)

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a blowout that occurred at the company No. 1 fee which caught fire and cratered after encountering the Cockfield sand. The first flowing well, No. 3 fee, was completed in December for an initial production of 200 bbls. of pipe line oil per day through a quarter-inch choke, from a depth of 6,979 feet and No. 2 fee flowed 425 barrels of 28 gravity oil per day through a quarter-inch choke from a depth of 6,910 feet. The field is situated on a block of approximately 40,000 acres centering around the G. W. Brooks Survey and is being developed jointly by the two companies who have already announced locations for three more wells.

Across the line in Victoria County, the Hughes gas field was discovered by the Portilla Oil Co. No. 1 Welder which was completed for a gas well at 4,279 feet. Same company's No. 2 P. H. Welder located 933 feet north flowed 5 bbls. per day through a quarter-inch choke but was abandoned due to salt water. It was completed through perforated casing at 4,846-53 feet. Location is in the Felipe Dimmitt Survey.

North of the town of Grapeland in the E. Steadman Survey, a wet gas field was opened by the completion of Ellison & McBride's No. 1 E. P. Bean, which flowed an estimated 23,000,000 cubic feet of gas and 5 bbls. of distillate per hour from the Woodbine sand bottomed at 6,038 feet. This is the only well drilled in the immediate area to date.

Important Extensions

Important extensions were marked up for the Pickett Ridge and McFaddin-O'Connor fields in Wharton and Refugio counties. One and a quarter miles north of the Pickett Ridge field, Wharton County, Texas Crusader Oil Co. No. 1 Kubela in the Gifford Survey, flowed 1½ bbls. of 25 gravity oil per hour through an eighth-inch choke, through perforated casing at 4,575-78 feet. North of the McFaddin-O'Connor area, Refugio County, Quintana Petroleum Co. No. 1 Fannine Heard extended production 1½ miles by flowing 1,430 bbls. per day through a three-eighths inch choke from the Frio sand at 5,850-54 feet.

Oil fields receiving new producing sands included the Orchard field in Fort Bend County where Gulf Production Co. Nos. 47 and 46 Moore opened a shallower sand in the Miocene section at 1,266 feet and a deeper sand at 7,892 feet. At Orange, in Orange County, Turnbull and others No. 1 Moore opened a deeper sand at 5,605 feet when it flowed distillate under high gas pressures, while at the Old Ocean field, Brazoria County, Harrison & Abercrombie No. 1 Armstrong Plantation established a new producing record for the state, when it flowed oil from a depth of 9,963 feet.

GULF COAST TEXAS

Summary of Wells Completed in 1936

Field—	Comp.	Prod.	Dry	Gas
Ace	2	349	1	0
Amelia	20	6,513	6	0
Anahuac	116	59,824	7	1
Arriola	2	413	0	0
Barber Hill	6	1,589	0	0
Batson	10	1,453	4	0
Big Hill	2	0	2	0
Big Creek	15	599	10	0
Blue Ridge	20	3,500	7	0
Boling	6	2,584	0	0
Bryan Mound	1	0	1	0
Clay Creek	14	731	6	2
Cleveland	5	518	0	0
Clinton	1	142	0	0
Coletto Creek	7	544	4	0
Conroe	44	22,076	5	0
Cotton Lake	11	1,920	4	0
Damon Mound	8	410	2	0
Danburay	1	24	0	0
Dickinson	41	16,265	5	2
Edna	1	0	0	1
Esperson	28	3,541	13	1
Eureka	1	0	0	1
Fairbanks	3	519	0	0
Fannett	6	987	1	0
Five Corners	4	0	1	3
Goose Creek	3	204	1	0
Grapeland	1	60	0	0
Greta	23	8,958	1	0
Hankamer	9	1,367	4	0
Hardin	2	0	2	0
Hastings	77	42,215	1	1
Hawkinsville	1	20	0	0
Heyser	17	2,944	2	2
Hughes	3	0	2	1
High Island	13	3,216	1	0
Hull	18	3,056	6	0
Humble	6	837	1	1
Keeran	1	288	0	0
Liberty	3	70	0	0
Livingston	18	5,394	2	0
Lockridge	3	553	0	0
Lost Lake	1	0	0	1
Louise	16	2,083	0	3
Magnet	2	85	1	0
Manvel	43	12,715	7	2
Markham	9	1,124	4	0
Mauritz	1	0	1	0
Nome	8	2,474	0	0
Mykawa	7	2,315	2	0
North Dayton	1	0	1	0
Old Ocean	1	203	0	0
Orange	4	15	3	0
Green Lake	5	305	3	0
Orchard	6	284	4	0
Pickett Ridge	35	9,548	3	2
Pierce Junction	15	6,383	1	0
Placedo	81	18,328	0	1
Port Neches	2	0	2	0
Quintana area	1	1,333	0	0
Raccoon Bend	37	16,097	4	1
Refugio	20	4,545	3	3
Saratoga	4	115	2	0
Seabreeze	1	24	0	0
Shepherds Mott	3	0	3	0
Silsbee	2	635	0	0
Segno	1	1,128	0	0
Spanish Camp	1	0	0	1
Sour Lake	1	72	0	0
South Bay City	1	230	0	0
South Houston	63	21,066	3	0
Splendora	2	0	2	0
Stratton Ridge	1	0	1	0
Sugarland	1	0	1	0
Thompson	6	2,836	0	0
Tomball	80	28,155	5	9
Tomoconnor	28	34,647	0	0
Turtle Bay	7	1,641	1	0
Van Vleck	15	8,645	1	0
West Columbia	3	270	1	0
Withers	16	4,233	1	1
Miscellaneous	122	0	123	0
Total 1936	1,226	375,217	284	40
Total 1935	1,074	315,151	304	51
Difference	152	60,066	20	11

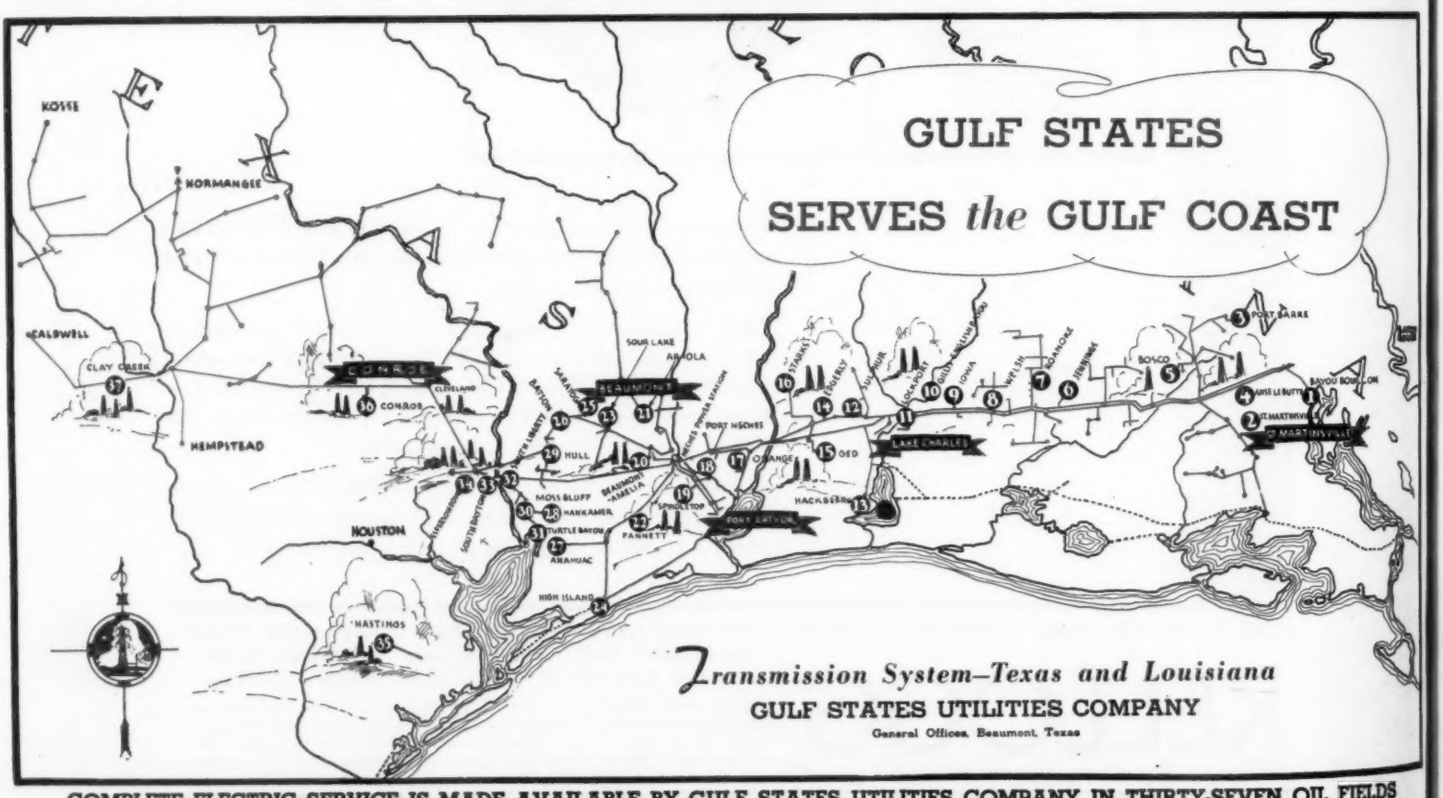
Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	73	21,959	19	3
February	82	25,746	23	2
March	95	25,546	29	5
April	98	34,119	17	4
May	105	35,170	25	1
June	120	35,173	35	3
July	107	33,391	27	2
August	118	35,226	20	4
September	116	31,723	31	3
October	105	34,012	20	2
November	116	31,601	22	6
December	91	31,551	16	4
Total	1,226	375,217	284	40

Coastal Louisiana

Of the six fields discovered in Coastal Louisiana, probably the most outstanding at this time are the Valentine and Charenton fields in Lafourche and St. Mary parishes. Pan American Production Co. No. 1 Harang opened the first production for the Valentine salt dome in Lafourche Parish when it flowed 467 bbls. of 34.5 gravity oil per day through a quarter-inch choke with tubing pressure 475 pounds and casing pressure. Production is from the Shoal River sand from 6,930-50 feet. The discovery well, completed the latter part of December, was the fourth test drilled on the structure and is located in section 7-17s-20e.

Mike Hogg and others No. 1 Laws Realty Co. located on the Charenton Prospect in section 30-13s-10e in St. Mary Parish was completed in the Miocene sand at a corrected depth of 7,208 feet, for an initial production



COMPLETE ELECTRIC SERVICE IS MADE AVAILABLE BY GULF STATES UTILITIES COMPANY IN THIRTY-SEVEN OIL FIELDS

FIELDS THAT HAVE BEEN SERVED FOR FIVE YEARS OR LONGER

1 Bayou Bouillon
3 Port Barre
4 Anse Le Butte
6 Jennings
8 Welsh
11 Lockport
12 Sulphur
13 Hackberry
14 Edgerly
15 Ged
16 Starks
17 Orange
18 Port Neches
19 Spindletop
22 Fannett
23 Sour Lake
24 High Island
25 Saratoga
26 Batson
28 Hankamer
29 Hull
30 Moss Bluff
32 South Liberty
33 South Dayton
34 Esperson Dome
35 Hastings
37 Clay Creek

RECENT DEVELOPMENT WHERE SERVICE IS AVAILABLE

2* St. Martinsville
5 Bosco
7 Roanoke
9 Iowa
10 Gillis-English Bayou
20* Beaumont-Amelia
21* Arriola
27 Anahuac
31* Turtle Bayou
36 Conroe

*Service within short distance.

of 450 bbls. per day through a 20/64-inch choke with tubing pressure 700 pounds. It later started to make some salt water and was recompleted for a good producer at a total depth of 7,215½ feet. The discovery well and the majority of the surrounding acreage was recently taken over by the Pan American Production Co. who are now developing the structure.

The South Jennings Prospect, Jefferson Davis Parish, 3 miles south of the town of Jennings in section 15-10s-3w was opened in November as a wet gas field, by the completion of Stanolind Oil & Gas Co. No. 1 Calcasieu National Bank which was completed at a plugged back depth through perforated casing at 8,639-48 feet for an initial production of 4 bbls. of distillate per hour through a 3/16-inch choke with tubing pressure 3,300 pounds. The hole was originally drilled to a depth of 9,944 feet.

Bayou Mallet

Bayou Mallet, northern Acadia Parish discovered in January as a wet gas field by Superior Oil & Producing Co. No. 1 Adams Smith received its first oil production with the completion of No. 1 Bradley located to the south which flowed 324 bbls. of 27.19 gravity oil per day through a 12/64-inch choke. Production is from the Heterostegina sand from 6,385-90 feet. Four wells have been completed on the company's block which centers around section 47-7s-1e. To the northeast, across the line in St. Landry Parish, the same company's No. 1 Adolph Savoie located in section 26-8s-3e, opened the Cankton field when it flowed oil and gas from the Miocene sand through perforated casing at 5,320-23½ feet. The casing was reperfor-

Texas Lower District (Continued)

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
MAURITZ:													
Daily average	164	150	143	151	147	139	126	125	125	122	121	120	
Month	5,088	4,350	4,430	4,538	4,555	4,176	3,906	3,875	3,750	3,782	3,630	3,720	49,800
McCAMPBELL:													
Daily average	.....	.....	.....	.....	.....	.....	20	96	223	171	153	288	
Month	.....	.....	.....	.....	.....	.....	620	2,976	6,690	5,301	4,590	8,928	29,105
McFADDIN-O'CONNOR:													
Daily average	344	330	297	285	264	258	259	254	251	251	251	249	
Month	10,661	9,574	9,205	8,542	8,186	7,734	8,029	7,874	7,530	7,781	7,530	7,719	100,365
MOUNT LUCAS:													
Daily average	185	325	272	209	113	110	102	157	211	200	185	163	
Month	5,731	9,417	8,434	6,279	3,506	3,307	3,162	4,867	6,330	6,200	5,550	5,053	67,836
McNEILL:													
Daily average	270	239	183	159	144	134	123	127	117	120	122	103	
Month	8,374	6,935	5,671	4,761	4,461	4,013	3,813	3,937	3,510	3,844	3,660	3,193	56,172
NORTH PETTUS:													
Daily average	1,391	1,386	1,410	1,416	1,612	1,720	2,108	2,182	2,226	2,274	2,255	2,038	
Month	43,125	40,196	43,714	42,479	49,969	51,592	65,348	67,642	66,780	70,494	67,650	63,178	672,167
PETTUS:													
Daily average	1,206	1,214	1,255	1,235	1,217	1,236	1,191	1,134	1,141	1,150	1,109	1,213	
Month	37,389	35,208	38,901	37,052	37,724	37,089	36,921	35,154	34,230	35,650	33,270	37,603	436,191
PLACEDO:													
Daily average	1,719	2,011	2,494	2,786	3,130	3,283	3,856	4,030	4,461	4,996	5,493	5,372	
Month	53,286	58,317	77,318	83,578	97,033	98,481	119,536	124,930	133,830	154,876	164,790	166,532	1,332,507
PLYMOUTH:													
Daily average	6,429	6,836	7,507	8,296	9,116	9,624	9,481	10,032	10,043	10,551	9,192	11,956	
Month	199,295	198,248	232,713	248,883	282,592	288,721	293,911	310,992	301,290	327,081	275,760	370,636	3,330,122
PORT LAVACA:													
Daily average	787	773	673	573	450	456	533	536	509	513	391	426	
Month	24,393	22,413	20,861	17,247	13,954	13,679	16,523	16,616	15,270	15,903	11,730	13,206	201,795
RAY:													
Daily average	1,754	1,800	1,840	1,839	1,821	1,796	1,788	1,795	1,800	1,761	1,425	1,452	
Month	54,378	52,205	57,042	55,174	56,453	53,882	55,428	55,645	54,000	54,591	42,750	45,012	636,560
REFUGIO:													
Daily average	4,022	4,312	4,685	4,890	5,003	5,139	4,964	4,981	5,307	5,441	5,589	5,401	
Month	124,686	125,043	145,232	146,696	155,091	154,168	153,884	154,411	159,210	168,671	167,670	167,431	1,822,193
SAXET:													
Daily average	5,970	6,626	7,036	8,200	5,541	10,439	12,424	14,169	17,249	19,574	18,231	20,638	
Month	185,074	192,151	218,119	245,995	295,776	313,167	385,144	439,239	517,470	606,794	546,930	639,778	4,585,637
SAXET HEIGHTS:													
Daily average	594	1,188	2,786	4,465	6,649	7,439	6,287	7,250	9,046	9,441	8,929	8,812	
Month	18,418	34,455	86,363	133,956	206,116	223,174	194,897	224,750	271,380	292,671	267,870	273,172	2,227,222
SEVIER:													
Daily average	146	130	144	149	148	143	124	127	322	330	430	558	
Month	4,522	3,774	4,467	4,464	4,591	4,286	3,844	3,937	9,660	10,230	12,900	17,298	83,973
TAFT:													
Daily average	152	103	214	260	485	623	913	1,193	1,642	1,693	1,993	2,336	
Month	4,716	2,989	6,637	7,793	15,031	18,685	28,303	36,983	49,260	52,483	59,790	72,416	355,086
TOMOCONNOR:													
Daily average	2,806	2,981	3,215	3,338	3,509	3,478	3,679	3,837	3,968	4,221	3,748	4,608	
Month	86,982	86,447	99,662	100,148	108,777	104,346	114,049	118,947	119,040	130,851	112,440	142,848	1,324,537
WEST TULETA:													
Daily average	1,590	1,564	1,327	1,097	1,077	1,086	921	941	835	814	874	817	
Month	49,296	45,358	41,134	32,902	33,389	32,574	28,551	29,171	25,050	25,234	26,220	25,327	394,206
VANDERBILT:													
Daily average	5	.....	103	84	114	107	92	93	89	77	92	90	
Month	159	.....	3,199	2,529	3,532	3,217	2,852	2,883	2,670	2,387	2,760	2,790	28,978
VOSS:													
Daily average	.....	.....	.....	.....	.....	.....	63	65	199	283	442	389	
Month	.....	.....	.....	.....	.....	.....	1,953	2,015	5,970	8,773	13,260	12,059	44,030
Total 1936	1,616,375	1,592,825	1,868,618	1,963,140	2,169,907	2,159,400	2,263,899	2,374,662	2,489,190	2,714,422	2,518,449	2,766,750	26,497,637
Total 1935	855,662	792,344	930,062	896,310	961,961	925,230	1,089,429	1,059,580	1,087,290	1,248,835	1,403,722	1,417,847	12,668,272

*Miscellaneous pools and their total production in 1936 follow: Agua Dulce, 28,051 bbls.; Alta Mesa, 9,014 bbls.; Alta Verde, 2,351 bbls.; Church, 124 bbls.; Dinero, 4,603 bbls.; Foley, 3,688 bbls.; Fort Merrill, 15,776 bbls.; Greyburg, 5,172 bbls.; Kingsville, 21,271 bbls.; La Salle Vieja, 13,219 bbls.; Normana, 3,963 bbls.; Oakville, 310 bbls.; Rutledge, 7,840 bbls.; Sinten, 12,332 bbls.; White Point, 4,093 bbls.; total, 131,807 bbls.

Coastal Louisiana

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
BAYOU MALLET:													
Daily average	.....	.....	50	101	260	276	176	257	39	219	240	243	
Month	.....	.....	1,550	3,029	8,062	8,272	5,456	7,967	1,170	6,789	7,200	7,533	57,028
BLACK BAYOU:													
Daily average	3,036	3,154	2,526	2,352	3,142	3,534	2,642	3,167	3,190	3,080	3,083	3,302	
Month	94,112	91,469	78,304	70,562	97,406	106,029	81,933	98,177	95,700	95,480	92,490	102,362	1,104,024
BOSCO:													
Daily average	15,715	15,011	13,617	13,644	14,363	13,639	13,168	11,664	10,358	10,433	10,252	9,726	
Month	487,161	435,316	422,129	409,323	445,250	409,171	408,208	361,584	310,740	323,423	307,560	301,506	4,621,371
CAILLOU ISLAND:													
Daily average	9,723	10,866	10,888	11,582	15,141	16,532	14,846	15,474	15,926	16,483	16,779	17,228	
Month	301,417	315,117	337,526	347,457	469,374	495,959	460,226	479,694	477,780	510,973	503,370	534,068	5,232,961
CAMERON MEADOWS:													
Daily average	5,762	5,576	5,849	5,339	5,763	5,837	4,904	4,716	4,595	4,503	4,330	4,559	
Month	178,626	161,701	181,316	160,174	178,657	175,112	152,024	146,196	137,850	139,593	129,900	141,329	1,882,478
CHENEYVILLE:													
Daily average	163	262	349	489	528	449	750	776	466	351	336	364	
Month	5,057	7,599	10,815	14,675	16,364	13,473	23,250	24,056	13,980	10,881	10,080	11,284	161,514
CHOCTAW:													
Daily average	1,186	1,078	1,050	838	1,055	950	871	850	912	899	900	900	
Month	36,762	31,265	32,553	25,136	32,701	28,498	27,001	25,350	27,360	27,869	27,000	27,900	349,395
DARROW:													
Daily average	942	862	1,184	1,351	1,583	1,498	1,481	1,718	1,712	1,829	1,683	1,709	
Month	29,198	24,997	36,708	40,525	49,077	44,937	45,911	53,258	51,360	56,699	50,490	52,979	536,139
DOG LAKE:													
Daily average	841	851	854	854	821	521	488	480	527	1,041	878	990	
Month	26,075	24,674	26,477	25,626	25,455	15,634	15,128	14,880	15,810	32,271	26,340	30,690	279,060
EDGERLY:													
Daily average	206	227	218	217	227	225	177	184	194	200	180	164	
Month	6,382	6,588	6,755	6,504	7,033	6,746	5,487	5,704	5,910	6,200	5,400	5,084	73,793
FOUR ISLE:													
Daily average	425	412	360	342	295	37	80	25	25	24	19	18	
Month	13,171	11,947	11,158	10,267	9,147	1,115	2,480	775	750	744	570	558	62,682

(Continued on Next Page)

ated and it flowed 21 bbls. of 28.1 gravity oil through a 14/64-inch choke.

In north-central Cameron Parish, Magnolia Petroleum Co. opened the Big Lake field as a wet gas area, January 5, with the completion of No. 1 Broussard located on a block of 17,000 acres centering around section 13-12s-8w. It was completed at a plugged back depth of 7,966 feet for an initial production of 20,000,000 feet of gas and 18 bbls. of distillate per day. Several attempts to extend the field have failed.

The older producing fields of Coastal Louisiana saw the development of shallower and deeper producing sands in numerous fields including Gillis, Calcasieu Parish, by the Union Sulphur Co.; Garden Island in Plaquemines Parish, Calliou Island in Terrebonne Parish and Leesville field in Lafourche Parish by the Texas Co.; Bayou Mallet field, Acadia Parish by Superior Oil Producing Co.; Jeanerette in St. Mary Parish by Herton Oil Co., St. Martinsville by Continental Oil Co., Lafitte in Jefferson Parish by Texas Co., New Iberia in Iberia Parish by the Texas Co. and Wm. Helis Port Barre in St. Landry Parish by Pan American Producing Co. and the old Jennings field in Acadia Parish, where Superior Oil Producing Co. and Shell Petroleum Corp. opened new sands for the west and south flanks of this old salt dome structure.

GULF COAST LOUISIANA

Summary of Wells Completed in 1936

Field—	Comp.	Prod.	Dry	Gas
Bay St. Elaine	2	0	2	0
Bayou Blue	1	0	1	0
Bayou Boullion	1	135	0	0
Bayou Mallet	7	559	3	1
Big Lake	3	0	2	1
Black Bayou	9	3,473	2	1
Caillou Island	15	14,455	2	0
Cameron Meadows	12	2,541	1	0
Cankton	1	58	0	0
Charenton	2	450	1	0
Cheneyville	7	1,205	2	0
Choctaw	1	0	1	0
Darrow	8	1,184	5	0
Dog Lake	3	942	2	0
Edgerly	2	30	1	0
Four Isle	3	0	3	0
Garden Island	3	2,463	0	0
Gillis	45	20,780	4	0
Gueydan	1	0	1	0
Hackberry	19	3,983	10	0
Houma Gas field	1	0	0	1
Iowa	6	2,764	1	0
Jeanerette	11	6,090	2	0
Jennings	18	4,377	0	0
Lafitte	6	7,809	0	0
Lake Barre	4	5,388	0	0
Lake Hermitage	2	144	1	0
Lake Pelto	1	960	0	0
Leesville	24	20,586	4	0
New Iberia	20	7,079	6	0
Port Barre	13	548	8	1
Roanoke	13	9,211	1	0
St. Martinsville	4	536	3	0
Sorrento	4	672	1	2
South Jennings	1	96	0	0
Starks	3	482	1	0
Sulphur	20	11,587	2	0
Sweet Lake	1	0	1	0
Tepetate	40	9,628	5	0
Vinton	7	1,763	4	0
White Castle	3	1,067	1	0
Miscellaneous	44	0	44	0
Total 1936	392	143,045	128	7
Total 1935	354	158,633	128	6
Difference	38	15,588	0	1

Completions by Months

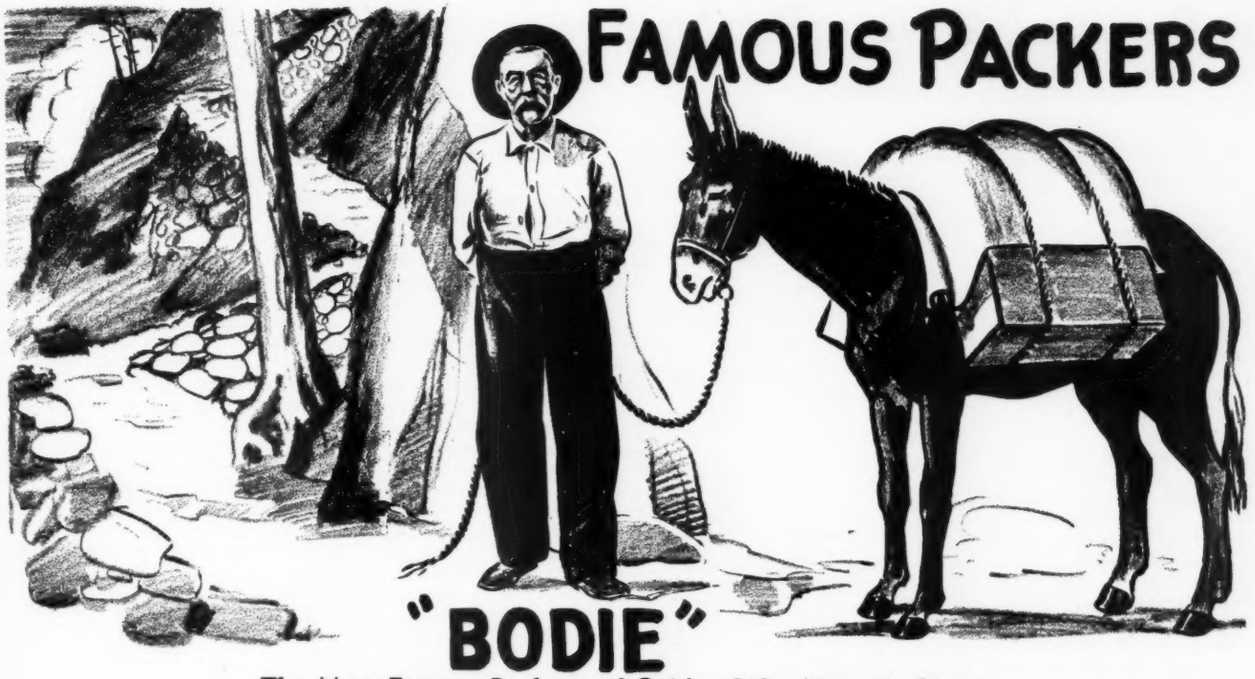
Month—	Comp.	Prod.	Dry	Gas
January	28	8,508	11	2
February	23	8,560	8	0
March	43	20,719	13	0
April	30	16,060	8	0
May	33	11,127	11	1
June	45	17,777	11	0
July	28	10,185	12	0
August	37	10,265	15	1
September	27	12,281	6	2
October	29	11,092	10	0
November	41	10,366	11	1
December	28	6,105	12	0
Total	392	143,045	128	7

Coastal Louisiana (Continued)

Daily Average and Monthly Production in 1936

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1936 (bbls.)
GARDEN ISLAND:													
Daily average	371	721	1,030	1,124	2,238	1,734	1,826	478	1,106	451	224	170	
Month	11,505	20,906	31,932	33,713	69,376	52,015	56,606	14,818	33,180	13,981	6,720	5,270	350,022
GILLIS:													
Daily average	12,598	13,199	14,768	15,646	16,791	13,539	15,473	15,671	16,804	16,914	16,855	16,978	
Month	390,534	382,775	457,804	469,388	520,524	406,176	479,663	485,801	504,120	524,334	505,650	526,318	5,853,087
GUEYDAN:													
Daily average	199	195	183	180	183	176	165	150	130	197	160	129	
Month	6,173	5,653	5,677	5,392	5,670	5,274	5,115	4,650	3,900	6,107	4,800	3,979	62,390
HACKBERRY (EAST):													
Daily average	7,104	6,986	7,452	7,813	8,680	8,584	8,219	8,290	8,445	8,858	8,717	8,614	
Month	220,228	202,654	231,017	234,399	269,084	257,527	254,789	256,990	253,350	264,598	261,510	267,034	2,973,180
HACKBERRY (OLD):													
Daily average	326	324	329	304	487	529	398	472	463	478	970	1,088	
Month	10,102	9,394	10,194	9,111	15,093	15,863	12,338	14,632	13,890	14,818	29,100	33,728	188,263
IOWA:													
Daily average	19,784	18,199	18,278	18,828	19,925	18,639	16,835	17,361	17,323	17,802	17,642	17,348	
Month	613,308	527,773	566,614	564,841	617,678	559,178	521,885	538,181	519,690	551,862	529,260	537,788	6,648,058
JEANERETTE:													
Daily average	669	586	1,595	1,961	2,119	2,615	2,941	3,488	3,807	3,779	3,998	4,005	
Month	20,735	16,997	49,449	58,829	65,686	78,442	91,171	108,128	114,210	117,149	119,940	124,155	964,891
JENNINGS:													
Daily average	1,655	1,714	1,950	2,080	2,229	2,216	2,286	2,135	2,222	2,940	2,688	2,870	
Month	51,301	49,703	60,453	62,402	69,094	66,489	70,866	66,185	66,660	91,140	80,640	88,970	823,903
LAFITTE:													
Daily average	3,150	3,057	3,806	4,537	6,318	6,239	7,466	7,974	8,220	7,999	9,798	9,854	
Month	97,654	88,656	117,989	136,113	195,856	187,171	231,446	247,194	246,600	237,969	293,940	305,474	2,386,062
LAKE BARRE:													
Daily average	9,265	9,303	9,575	9,747	10,550	7,894	8,503	6,702	6,047	5,709	5,552	6,133	
Month	287,219	269,784	296,822	292,408	327,055	236,811	263,593	207,762	181,410	176,979	166,560	190,123	2,896,526
LAKE PELTO:													
Daily average	450	429	469	899	1,373	335	437	175	161	115	86	122	
Month	13,954	12,444	14,537	26,974	42,568	10,052	13,547	5,425	4,830	3,565	2,580	3,782	154,258
LAKE WASHINGTON:													
Daily average	1,457	1,557	1,416	1,310	1,079	1,008	983	873	816	1,168	1,183	1,286	
Month	45,163	45,151	43,898	39,296	33,444	30,238	30,473	27,063	24,480	36,208	35,490	39,866	430,770
LEESVILLE:													
Daily average	12,869	14,050	13,892	14,442	15,907	13,480	13,199	14,168	14,919	12,302	14,149	10,549	
Month	398,935	407,452	430,656	433,265	493,119	404,403	409,169	439,208	447,570	381,362	424,470	327,019	4,996,628
LOCKPORT:													
Daily average	1,287	1,268	1,217	1,132	1,298	1,212	1,249	1,140	1,372	1,352	1,593	1,663	
Month	39,901	36,774	37,723	33,955	40,236	36,357	38,719	35,340	41,160	41,912	47,790	51,533	481,420
NEW IBERIA:													
Daily average	2,190	2,647	3,068	3,096	2,615	3,271	4,836	6,623	7,040	7,755	12,221	15,647	
Month	67,895	76,761	95,104	92,886	81,068	98,134	149,916	207,313	211,200	240,405	366,630	485,057	2,172,369
PORT BARRE:													
Daily average	2,769	2,774	2,625	2,232	2,497	2,398	2,161	2,275	2,379	2,004	1,847	1,993	
Month	85,835	80,444	81,379	66,954	77,404	71,936	66,991	70,525	71,370	62,124	55,410	61,783	852,155
ROANOKE:													
Daily average	5,888	5,477	5,784	5,765	7,109	6,893	7,262	7,311	6,885	6,139	5,651	5,820	
Month	182,524	158,835	179,301	172,957	220,376	206,795	225,122	226,641	206,550	190,309	169,530	180,420	2,319,360
SORRENTO:													
Daily average	635	475	452	394	525	500	300	305	301	318	279	267	
Month	19,689	13,778	14,015	11,813	16,278	14,995	9,300	9,455	9,030	9,858	8,370	8,277	144,558
STARKS:													
Daily average	495	471	500	485	523	480	461	432	445	432	688	776	
Month	15,341	13,656	15,496	14,558	16,216	14,406	14,291	15,496	13,350	13,392	20,640	23,056	199,898
ST. MARTINSVILLE:													
Daily average	884	884	860	861	947	867	1,067	899	711	738	723	678	
Month	27,408	25,639	26,664	25,822	29,354	26,004	33,077	27,869	21,330	22,878	21,690	21,018	308,753
SULPHUR:													
Daily average	2,572	3,272	4,371	5,734	5,024	4,893	5,037	5,413	6,067	5,325	4,954	5,122	
Month	79,736	94,885	135,503	172,029	155,748	146,797	156,147	167,803	182,010	165,075	148,620	158,782	1,763,135
SWEET LAKE:													
Daily average	1,096	1,043	983	969	1,066	996	930	933	946	973	929	908	
Month	33,972	30,243	30,471	29,061	33,042	29,873	28,830	28,923	27,380	30,163	27,870	21,148	357,976
TEPETATE:													
Daily average	1,749	1,876	2,244	3,491	4,604	5,787	4,659	4,701	5,150	5,286	5,352	5,353	
Month	54,215	54,408	69,567	104,731	142,726	113,618	144,429	145,731	154,500	163,866	160,560	155,943	1,464,294
VINTON:													
Daily average	2,015	2,036	1,864	1,834	1,997	1,853	1,771	1,670	1,546	1,609	1,566	1,542	
Month	62,469	59,047	57,781	55,019	61,905	55,582	54,901	51,770	46,380	49,879	48,546	47,802	651,081
WHITE CASTLE:													
Daily average	773	755	775	699	632	567	523	911	1,457	1,373	1,718	1,758	
Month	23,959	21,894	24,023	20,968	19,596	17,001	16,213	28,241	43,710	42,563	51,540	54,498	364,206
MISCELLANEOUS:*													
Daily average	189	155	185	165	227	207	332	273	414	528	206	380	
Month	5,862	4,487	5,736	4,948	7,029	6,217	10,302	8,463	12,420	16,368	6,195	11,780	99,807
Daily average	130,438	131,754	136,616	142,837	160,121	148,410	148,903	150,234	153,090	150,961	158,482	159,901	147,698
Total 1936	4,043,578	3,820,866	4,235,096	4,285,110	4,963,751	4,452,300	4,616,003	4,657,248	4,592,690	4,679,786	4,754,451	4,956,916	54,057,795
Total 1935	2,682,926	2,589,328	2,974,822	3,040,855	3,395,668	3,460,110	3,654,559	3,677,561	3,629,250	3,846,015	3,819,960	3,886,377	40,657,131
TOTAL GULF COAST:													
Daily average	340,954	350,692	366,846	387,801	411,417	401,590	398,860	407,480	408,002	415,587	401,869	414,863	392,389
Month	10,568,954	10,170,068	11,372,226	11,634,030	12,753,927	12,047,690	12,395,670	12,631,893	12,240,053	12,883,192	12,056,081	12,860,752	143,614,536
Total 1935	8,228,609	7,568,848	8,643,792	8,493,565	8,959,471	9,305,310	9,477,692	9,318,693	9,274,320	9,832,642	9,833,310	10,276,903	109,213,155
Total 1934	6,363,760	5,739,775	6,322,555	6,426,385	7,093,601	6,908,315	7,490,332	7,601,226	7,599,474	7,451,451	7,413,030	7,805,301	84,215,206
Total 1933	5,008,573	4,481,227	5,522,626	5,694,532	6,936,095	6,531,707	7,389,261	7,884,507	7,284,030	7,099,462	6,031,283	6,280,424	76,143,727
Total 1932	4,178,761	3,722,638	3,988,104	4,002,141	4,415,809	4,244,365	4,490,286	4,698,324	4,990,464	4,848,967	4,843,585	4,973,828	53,396,758

*Miscellaneous pools and their total production in 1936 were: Anse La Butte, 23,612 bbls.; Bayou Bouillard, 8,535 bbls.; Big Lake, 5,564 bbls.; Lake Hermitage, 24,016 bbls. Welch, 13,738 bbls.; Charenton, 23,661 bbls.; South Jennings, 682 bbls.



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BETTER BE SAFE THAN SORRY

Central West and Kentucky in Revival; 2 New Pools

By GEORGE A. WHITNEY

A general increase is noted in the completed field work in the Central West fields for 1936 when compared with the results of the previous year.

The Livermore pool, in McLean County, Kentucky, was opened by the B B Oil Co., with a 150-bbl. well on the outskirts of Livermore, Ky. This pool was extended into the town of Livermore and more than 100 wells were completed there in the past year. The majority of these wells had an initial production of from 75 to 300 bbls. and the pool has done a great deal to bring the production figures of Kentucky up to their present place. The Cumberland Petroleum Co. completed two tests near Sacramento, in McLean County, which made 21,500,000 ft. of gas and 10,000,000 ft. of gas and these tests will undoubtedly increase activity in that section this next 12 months.

The following is a summary of the year's work in the Central West fields and the Kentucky field.

CENTRAL OHIO FIELDS

Summary of Wells Completed in 1936

County—	Comp.	Prod.	Dry	Gas
Ashland	29	44	9	19
Belmont	1	0	1	0
Coshocton	23	353	2	12
Cuyahoga	10	117	5	3
Fairfield	13	4	1	11
Gallia	1	0	0	1
Harrison	1	0	0	1
Hocking	13	43	3	6
Holmes	46	36	17	28
Huron	3	0	0	3
Lawrence	1	0	0	1
Lorain	32	0	11	21
Morgan	22	28	5	8
Pike	1	0	0	1
Perry	53	697	10	26
Portage	1	0	1	0
Richland	10	0	2	8
Scioto	5	0	0	5
Stark	57	0	17	40
Summit	18	1	2	15
Tuscarawas	16	0	4	12
Wayne	22	0	4	18
Total 1936	378	1,323	94	239

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	20	86	4	13
February	21	187	6	13
March	16	5	8	7
April	28	39	8	17
May	17	53	4	10
June	17	25	4	12
July	33	122	9	21
August	43	53	9	29
September	40	254	10	21
October	58	152	14	38
November	55	196	14	37
December	31	151	4	21
Total 1936	378	1,323	94	239
Total 1935	190	787	52	113
Difference	188	536	42	126

LIMA FIELDS

Summary of Wells Completed in 1936

County—	Comp.	Prod.	Dry	Gas
Allen	5	50	0	0
Fulton	4	40	0	2
Hardin	14	65	2	8
Hancock	2	1	0	1
Mercer	1	10	0	0
Ottawa	1	20	0	0
Logan	4	0	0	4
Putnam	10	155	0	1
Sandusky	4	8	0	2
Seneca	18	4	3	13
Shelby	2	8	0	0
Van Wert	1	0	0	1
Wood	3	35	1	1
Wyandot	12	80	3	4
Total 1936	81	476	9	37
Total 1935	94	614	22	29
Difference	13	138	13	8

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	8	16	2	3
February	3	1	2	0
March	1	0	1	0
April	7	121	0	2
May	2	0	0	2
June	7	25	1	5
July	8	8	0	7
August	13	75	0	4
September	11	105	0	4
October	8	59	1	3
November	10	65	2	5
December	3	1	0	2
Total 1936	81	476	9	37

ILLINOIS FIELDS

Summary of Wells Completed in 1936

County—	Comp.	Prod.	Dry	Gas
Clinton	8	770	2	0
Crawford	7	18	2	0
Jasper	1	25	0	0
Marion	2	50	0	0
McCoupin	1	0	1	0
McDonough	6	21	1	0
Lawrence	1	8	0	0
Pope	1	0	1	0
St. Clair	8	396	0	0
Total 1936	35	1,288	8	0
Total 1935	11	342	6	0
Difference	24	946	2	0

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	5	88	1	0
February	2	57	1	0
March	4	102	2	0
April	4	120	2	0
May	6	179	0	0
June	2	5	0	0
July	0	0	0	0
August	1	200	0	0
September	5	262	1	0
October	3	225	0	0
November	3	50	1	0
December	0	0	0	0
Total 1936	35	1,288	8	0

INDIANA FIELDS

Summary of Wells Completed in 1936

County—	Comp.	Prod.	Dry	Gas
Daviess	17	15	9	7
Decatur	7	0	0	7
Delaware	1	0	0	1
Dubois	1	0	1	0
Gibson	10	198	5	2
Jay	5	0	1	4
Johnson	1	0	1	0
Hancock	3	0	0	3
Huntington	1	25	0	0
Knox	32	55	14	12
Lawrence	1	0	1	0
Perry	37	115	24	7
Pike	27	188	7	11
Posey	4	0	2	2
Ripley	1	0	0	1
Shelby	3	0	1	2
Spencer	15	42	11	0
Sullivan	4	0	4	0
Vanderburgh	23	393	10	0
Vigo	3	35	1	0
Total 1936	196	1,067	92	59
Total 1935	197	754	86	74
Difference	1	313	6	15

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	19	53	9	6
February	9	15	7	1
March	7	60	5	1
April	22	295	9	5
May	9	20	5	3
June	16	285	4	7
July	17	75	9	5
August	30	85	13	10
September	13	58	6	3
October	13	10	7	4
November	14	45	6	6
December	27	66	12	8
Total 1936	196	1,067	92	59

KENTUCKY FIELDS

Summary of Wells Completed in 1936

County—	Comp.	Prod.	Dry	Gas
Daviess	1	0	1	0
Hancock	3	0	0	3
Henderson	17	250	4	0
McLean	180	8,648	45	4
Muhlenburg	3	160	0	0
Ohio	117	2,130	42	2
Warren	4	570	0	1
Wayne	1	*5,000	4	0
Total 1936	326	16,758	96	10
Total 1935	253	6,777	70	16
Difference	73	9,981	26	6

*Estimated.

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	20	684	8	2
February	5	538	1	0
March	22	1,788	5	0
April	21	575	15	3
May	18	743	7	0
June	25	736	8	0
July	22	498	5	0
August	35	1,734	9	1
September	47	1,975	8	3
October	37	6,103	6	0
November	33	676	8	1
December	41	708	16	0
Total 1936	326	16,758	96	10

California Fields

(Continued from Page 78)

a possible shortage of crude oil in California during the past 20 years. There has been a maladjustment and unequal distribution of crude oil supply between marketers and this unequal distribution has often been mistaken for an impending shortage, especially from the viewpoint of one who does not have ample reserves for the next five years. At the close of 1936, Barnsdall Oil Co. appeared on the verge of opening up a new oil field in the Newhall district and Reserve Oil & Gas Co. was working on a series of important tests in the Tejon district, located in the extreme southern end of San Joaquin Basin in Kern County. Production possibilities of the Arvin district of Kern County also looked rather promising at the close of 1936. In addition to these promising wildcats, several important deep tests are being drilled in the Santa Fe Springs, Richfield, Mountain View, Dominguez and Ventura Avenue fields by various operators and this deep exploration work may ultimately prove of considerable importance. At Ventura Avenue, Associated Oil Co. No. 12 McGonigle was completed in mid January, 1937, at 10,569 feet. It is the deepest commercial oil well in the world, producing 536 bbls. initially. In the Santa Fe Springs field of Los Angeles Basin, Union Oil Co. had reached a depth of 8,710 feet in No. 100 Bell, which is being drilled to determine the possibility of developing deeper commercial production. A similar deep test is expected to be undertaken by Shell Oil Co. in the Long Beach field, but this work may be held back until late in 1937. In the Mountain View field of Kern County, Mohawk Oil Co. has reached a depth of 8,300 feet in No. 3 Hood in section 30-30-29, but it may require a 9,000-foot test in this area to prove conclusive.

Field Operations

Drilling operations in proven fields and wildcat territory in 1936 reached the highest point recorded since 1929 and every indication points to the maintenance of a high rate during 1937. Geophysical exploration is expected to prove an important factor in wildcat drilling during 1937, as this type of work was found highly successful in the past year. The Ten Section field and the Greeley field were both indicated by the seismograph. There were 31 seismograph parties working in California at the close of 1936 and appreciation of the part played by geophysical exploration in the discovery of the Ten Section and Greeley fields is expected to result in a substantial gain in the number of crews during 1937.

During 1936 drilling operations became statewide in scope and many wells were finished in fields showink relatively small initial production. A substantially smaller initial of new wells completed in the Kettleman North dome and Mountain View fields was primarily responsible for the large drop recorded in the aggregate initial production of wells in 1936. There were 1,094 new rigs erected during 1936 and 802 new oil or gas wells were completed during the year. The number of wells actually producing declined from 12,700 in January, 1936, to 12,230 in December, although the monthly average, 12,191, is the largest average ever reached in California for any 12 months' period.

Extensive Leasing Program

Barnsdall Oil Co. and Foster Minerals Corp., the latter owned by H. V. Foster of Bartlesville, Okla., completed an extensive leasing program in the Carrizo Plains, San Luis Obispo County, in the summer of 1936. The leases are owned jointly by the two companies and comprise the largest block of acreage ever leased by an oil company in California. The properties cover 20 leases, comprising a total of 160,000 acres, in an area 36 miles long and 18 miles wide. Some of the larger holdings under lease include the Wreden property of 60,000 acres; the Blakey property of 21,000 acres; the McDonald property of 10,000 acres and the C. E. Houchin property of 5,000 acres. The companies have been seismographing for several months and have been carrying on extensive field work. The first well No. 1 Wreden, located on a seismograph structure in the southeast corner of the Wreden ranch in section 24-28-17, was abandoned late in 1936 as dry at 5,087 feet. The companies plan an extensive program, which should thoroughly test the possibilities for commercial production in the area, and have recently started preparations to drill a second test in section 1-32-20 about 20 miles northwest of the original hole.

Mergers

Mergers effected during the past year include that of Richfield Oil Co., Pan American and Rio Grande Oil Co., which was approved by the court late in December and which will be final after expiration of the prescribed 30-day period late in January, 1937. This merger was accomplished under section 77-B of the Federal Bankruptcy Act and was preceded by an exchange of securities and properties of Consolidated Oil Co. and Cities Service Co. through the medium of Rio Grande Oil Co. In September, 1936, Tide Water Associated Oil Co. acquired all the assets of Terrabella Investment Co. in exchange for 230,000 shares of Tide Water Associated common stock. Assets of Terrabella Investment Co. included a 2.6797 per cent in Kettleman North Dome Association and a royalty interest in oil leases operated by the association and a bonus interest payable out of future production. After completion of this deal the percentages of members in the Kettleman North Dome Association were Seaboard Oil Corp. 24.6042 per cent; General Petroleum Corp. 22.6553 per cent; Continental Oil Co. 19.8538 per cent; Shell Oil Co. 8.68 per cent; Kettleman Oil Corp. 8.0999 per cent; Kettleman-Inglewood Corp. 4.6574 per cent; Tide Water Associated Oil Co. 4.2631 per cent; Union Oil Co. 3.8977 per cent; Standard Oil Co. 1.0962 per cent; Pioneer Kettleman Co. .8526 per cent; Petroleum Securities Co. .8526 per cent; Amerada Petroleum Corp. .3654 per cent and Helm and Gillan .1218 per cent; total 100.0000 per cent.

NEW GAS FIELDS; INCREASE IN OIL OUTPUT IN EASTERN AREA

By J. P. O'DONNELL

That secondary recovery operations are enabling the Pennsylvania Grade crude oil industry to maintain its place in the nation's petroleum picture was demonstrated clearly in 1936 when the water-flood areas of Bradford and Allegany and the air-gas repressured areas of the middle district registered gains in production to offset declines in the southern districts and keep the supply of Pennsylvania oil at very nearly the level of demand.

Estimated total output of the region, based on daily average production figures issued weekly, was 26,971,550 bbls., an increase of 1,619,000 bbls. from 1935 and less than five days' production under the indicated demand.

A comparison of the estimated production for the past two years of the six districts comprising the region follows:

District—	1936	1935
Allegany	3,302,650	3,201,950
Bradford	14,553,350	13,151,050
Kane-Butler	2,939,200	2,690,950
Southwest Pennsylvania	924,850	931,900
Southeast Ohio	1,489,150	1,548,200
West Virginia	3,762,350	3,828,500
Total	26,971,550	25,352,550

Conditions which were general throughout the oil industry were reflected in the Pennsylvania region which experienced its best year in many ways since 1930. Crude oil prices were higher than in 1935 and the prices of refined products at the end of the year, with the lone exception of straightrun gasoline, were above the level that obtained on December 31, 1935.

In accounting for 54 per cent of all the Pennsylvania production in 1936, the Bradford field established a new high for itself for the last 54 years but a record that is likely to be exceeded in 1937. More production, justified by the higher price for crude and the greater demand, requires more drilling in a repressured field. Roughly, it is estimated that there are more than 50,000 acres in this field yet undeveloped by water-flood and that nearly 10 per cent of this area will be five spotted during the coming year.

Allegany, which produced more than 12 per cent of the region's production in 1936, should register a proportionate increase. Allegany, which with Bradford and the Kane-to-Butler district, bore the burden of supplying the increased demand of 1936, is expected to bear an equal share of the gain anticipated in 1937.

The Kane-to-Butler district, including air-gas repressuring as well as water-flood areas, showed a substantial gain in 1936 that will continue through 1937.

More than a score of air-gas repressuring plants were installed in 1936 or were in the process of installation at the end of the year in the Pleasantville-Grand Valley district where 50 rigs were in operation at one time last summer. Many of these properties were also electrified in the past year.

Expenditures in the Pleasantville-Grand Valley district exceeded a million dollars in 1936 and operators will be seeking to regain this investment this year. Properties in this and neighboring areas are in greater demand since acreage in the more northern fields is virtually unobtainable. A number of Bradford operators now have properties in the middle district while others are seeking them.

Most interesting oil development of the year in Butler County was at Queen Junction, 8 miles north of the city of Butler. Several good wells, one of which came in flowing 40 bbls. but settled down to substantially less, were completed in this immediate area last year. Several gas wells, gauging a half million feet per day, were also drilled at Queen Junction. Production is found at 1,000 feet in what is known as the Shire sand.

Some repressuring has been conducted in this field, using old oil wells for intake wells. Depth of the sand makes five- or seven-spotting impracticable here.

The one attempt to find Oriskany sand production in Butler County last year ended in failure when salt water was found in this formation. Other Oriskany tests were under way in Slippery Rock Township, Lawrence County; Franklin Township, Butler County, and Independence Township, Beaver County, at the close of the year.

While the featured developments of the past year in southwestern Pennsylvania were the drilling of Oriskany sand tests in Fayette, Washington and Lawrence counties, the active development of the Fifth sand pay streak in Amwell Township, Washington County, and several 100-bbl. wells in Center and Washington townships, Greene County, developed considerable interest.

Wild reports which were publicized widely directed more than deserved attention to the Oriskany test in the mountains of South Union Township, Fayette County. Drilled into the sand early in August, this well, which gauged 500,000 feet, has not yet been completed. Its successful completion this year, however, would start a deep sand drilling campaign in this area. A Washington County test is now drilling to the Oriskany.

A number of good wells, one of which flowed 170 bbls., were drilled to the Fifth sand in Washington County together with a 35-bbl. well in the Fifty-foot sand, first local producer in this formation. Two 100-bbl. wells were completed in the Ninevah Thirty-foot sand in Center district, Greene County, and a possible new local pool was opened with the completion of a 100-bbl. well in the Fifty-foot sand at 2,685 feet in Washington Township, same county.

EASTERN FIELDS

Completions by Districts

Field—	Comp. wells	Initial prod.	Dry holes	Gas wells	Water intake
Bradford	1,745	2,097	1	0	395
Allegany	957	678	0	0	328
N. Y.-Penna. Gas	65	.....	18	47	...
Venango-Clarion	283	525	11	10	...
Butler-Armstrong	70	113	20	5	...
S. W. Penna.	149	1,175	37	69	...
S. E. Ohio	541	5,251	143	133	...
West Virginia	718	1,399	118	458	...
Total 1936	4,528	11,238	348	722	723
Total 1935	3,047	7,236	277	468	445
Difference	1,481	4,002	71	254	278

Completions by Months

Month—	Comp. wells	Initial prod.	Dry holes	Gas wells	Water intake
January	247	571	20	33	34
February	229	1,023	10	32	32
March	221	594	11	39	28
April	317	647	21	54	42
May	343	999	17	37	70
June	439	734	32	58	73
July	410	977	29	69	67
August	465	973	39	82	72
September	533	1,290	57	98	77
October	459	1,216	34	59	69
November	444	920	33	82	76
December	421	1,294	45	79	83
Total	4,528	11,238	348	722	723

Further development of the Clinton sand, particularly in Hanover Township, Licking County, was outstanding in the southeastern Ohio operations. One 200-bbl. well was completed in the 3,000-foot deep Clinton sand in Hanover Township, while several other good producers were drilled to the same formation in other sections of Licking County as well as in several other counties.

A fair gasser was completed in the Oriskany sand in Madison Township, Columbiana County, and another deep test was drilling at the end of the year in the same township. A number of good gas wells were completed in the Berea as well as in the Clinton sand in Southeast Ohio.

Oriskany sand drilling, particularly in Kanawha County, was outstanding in West Virginia during 1936. A number of good deep sand wells, the best of which gauged 15,000,000 feet, were completed and several wildcats developed important extensions to the limits of the productive area. At one time during the year more than two score wells were drilling to the Oriskany, found around 5,000 feet. While the Elk, Malden, Loudin and Poca districts of Kanawha County were most active, other wells were drilled or were drilling at the end of the year in Cabell, Gilmer, Pleasant, Roane, Upshur and Wetzel counties.

All pipe line work of consequence in the Eastern fields in the past year provided new outlets for the Oriskany sand fields. Three lines totaling 335 miles in length were laid to northern and western New York and southwestern Pennsylvania.

Canadian Fields

(Continued from Page 123)

from a body of heavier crude down the flank of the structure. West flank drilling, at first restricted to the west side of sections 28 and 21, spread north, south and west; and at the end of the year tests of the potential crude areas were under way over more than 5 miles north and south; and numerous new locations had been made south and west. In December two additional tests got crude in the lime. Foundation Royalties No. 1, LSD 5, section 21-18-2w5, got the lime at 6,018 feet and finished at 6,456 feet with initial production around 580 bbls.; and Sterling Pacific No. 3, LSD 13, section 33-18-2w5, got the lime at 6,238 feet and finished at 6,788 feet, bailing between 110 and 130 bbls. with the well not fully cleared of fluid. Production started around 44.5 gravity, increasing with continued production.

Deep Drilling to East

A noteworthy development was deep drilling activity east of Turner Valley, based on the belief that here, where the line was deeply buried, was the source of Turner Valley naphtha and light crude. Prior to 1936 Ranchmen's Gas & Oil Co. No. 1 had been drilling for some years on the Aldersyde structure in LSD 16, section 13-20-29w4, encountering small oil and gas shows at depth. At the end of the year this test was below 7,040 feet without reaching the lime. Meanwhile, closer to Turner Valley, Arca Development Corp., backed jointly by Imperial Oil, Ltd., Canadian Western Natural Gas, Light, Heat & Power Co. and Calgary & Edmonton Corp., started No. 1 test in NW section 24-18-1w5 with the Madison lime below 8,000 feet as its objective. Late in December this test got the Madison at 8,763 feet, having meanwhile established a new deep drilling record for Canada. North and west of Turner Valley, McLeod Oil Co. No. 1, LSD 4, section 6-21-2w5, on the New Valley structure, encountered a strong show of crude in the cardium sandstone and is deepening below 7,028 feet.

Alberta Foothills

Outside Turner Valley, drilling was carried on in 11 different areas in the Alberta foothills. The only conclusive results were in the Jumping Pound area, where Imperial Oil, Ltd., drilled two shallow tests for crude indicated in previous deep drilling. Both finished dry. West of Olds, Hunter Valley Oil Co. No. 1 McLaren, LSD 12, section 13-31-10w5, was carried to 6,939 feet, apparently close to the Madison; and on the Pekisko structure, Pekisko Hills Co. No. 1, LSD 6, section 6-17-2w5, was deepened in the lime to 4,401 feet without getting production. The most encouraging results have been secured in Mar Jon Oil Co. No. 1 on the Watson structure, deepening below 5,308 feet, and Weymarn Petroleum No. 2 near Pincher Creek, below 5,790 feet.

Alberta Plains

In the Alberta plains area, Terminal Oil Co. No. 1, NE section 18-1-21w4, on the Del Bonita structure, standing unfinished in the lime at 5,112 feet, had a small production of light crude. Sunshine Oils No. 1, LSD 10, section 19-1-21w4, on the same structure, reached Madison lime late in December. Del Bonita Associated Oils No. 3, on the Twin River structure, was also carried to the lime. In the Taber area, Plains Petroleum No. 1, LSD 13-14, section 29-9-17w4, was still drilling. The only definite completion was McDougal-McLeod Oil Co. No. 1, section 9-1-5w4, on the Comrey structure, which finished in the lime at 3,850 feet without a show.

Necessity for Increased Oil Reserves Spurs Wildcatters in Many Areas

With the necessity of increasing reserves and the conviction that better prices will prevail for crude oil later in the year wildcatters will be active in every producing state this year.

One of the most interesting campaigns of exploration is now under way in the Central Coal Basin of Illinois where a number of major Mid-Continent companies have leased millions of acres of land preparatory to drilling to deep levels where a large reserve of oil heretofore untapped is believed to be a probability. Already a number of tests are going down in that area and these should be completed before the end of the winter.

Kansas

Encouraged by their 65 successes in 1936, drillers of wildcat wells in Kansas will widen their scope of acivity in 1937, carrying their quest for oil and gas into a majority of the counties in the western two-thirds of the state. Before the end of the year it is expected that exploration will be under way in counties along the Oklahoma border, as far west as the Colorado line and northward to the Nebraska boundary.

Much of that area is the wildest of wildcat territory, but the recent oil strike in Clark County and the older oil strike in Scott County, plus various gas discoveries and extensions in the general Hugoton district, have been a tonic for future operations.

The Barton Arch will continue to be favored by wildcat operators, with the counties it traverses getting the biggest play. A majority of the discoveries in Kansas in 1936 were in this central and west-central part of the state, and operators will seek similar results in the current year.

Rice, Barton, Russell and Ellis counties may be explored even more extensively in 1937 than in 1936, and that was a record-breaking year for the four busy counties. Such strikes as those at Hauschild, Bloomer, Trapp and Bemis—to mention four outstanding discoveries—have been incentives for more intensive wildcatting in this district.

Although Reno County had no outstanding discovery in 1936, it will continue to share in the wildcatting this year as operators seek more prolific pools such as Burrton, Lerado and Hilger. The Lerado pool, discovered late in 1935, gave new life to the wildcat play in western Reno.

McPherson County, where the Graber pool was outstanding in 1936; Harvey County, with its new Warkentine pool; Stafford County, where deep pay was found in the St. John area; Pawnee County, where a new pool was opened; Rush, Ellsworth, Trego, Rooks and Ness Counties will share in the wildcat activity this year.

Kingman, Pratt, Barber, Harper, Sumner and Cowley counties to the south, and older areas in Sedgwick, Butler, Greenwood, Woodson and the southeastern counties may be expected to provide some of the wildcat activity.

Oklahoma

Operators in Oklahoma are expected to intensify their search for new pools in 1937.

Southern and southwestern Oklahoma will be favored by the wildcatters during much of the year, as the search for deep pay sands—already tapped by one or two deep wells—is intensified. That Stephens County will be thoroughly explored for deep production already is indicated, with the announcement of three new deep tests following abandonment of the Ed Parsons well near Marlow, Stephens County. Location for two of the Ordovician tests already have been made in sections 12-1n-5w and 24-2s-4w, and the third is reported to be in section 17-3s-4w. Another newly announced wildcat in the same general area but across the line in Grady County has been proposed in section 32-3n-7w.

Caddo County may be a favored spot with the wildcatters, despite the fact that deep drilling is more or less the rule. One of the world's deepest producing wells is located in Caddo County, at Binger, but with the exception of one other test that was a failure no more tests have been drilled in that sector. However, several wildcats may be drilled in efforts to extend the Cement area and to uncover a pool that many observers think eventually will be opened in southern Caddo County.

Tillman County, where a wildcat south of Frederick showed oil sufficiently to be hailed as a pool opener until water drowned it out, will see more wildcatting in 1937, as will Jackson, Greer, Beckham and Harmon counties, if present indications and reports are borne out. Drilling of shallow wildcats in Kiowa and Comanche, and deeper tests in Washita and Jefferson counties may be expected. Despite failure of two promising looking wildcats in Love County to be completed as producers in 1936, they had showings that are deemed sufficient to justify additional exploration this year.

A Viola lime discovery in Clark County, Kansas, adjoining Harper County, Oklahoma, on the north has served as a tonic to leasing in northwestern Oklahoma and is due to result in considerable exploratory work in that part of the state this year. Definite announcement of locations have not been made, but observers feel confident several wildcats will be drilled in the northwestern counties in 1937.

Despite numerous failures, many oil men believe oil will be discovered somewhere in southeastern Oklahoma, so that area undoubtedly will share in the wildcatting of 1937. Current tests are drilling in Choctaw and Latimer counties. More wildcat wells will be drilled on big blocks assembled in Coal and Atoka counties, southeast from the Fitts and Jesse pools of Pontotoc County.

The central counties will be explored, with wildcats scattered over a broad expanse from Texas to Kansas. The Nemeha trend, on which such pools as those at Oklahoma City, Moore, Edmond and Crescent were discovered, will be further tested this year. The central play already has been taken almost to the Kansas line, with a wildcat getting under way in northwestern Kay County, one-half mile south of Sumner County, Kansas. Wildcatting will continue, as it did in 1936, in the Greater Seminole district and adjoining sectors.

Gulf Coast District

Wildcatting along the Gulf Coast district in 1937 has very definitely shifted to Coastal Louisiana, where a wide-spread exploration program is getting under way following a two-year period of an extensive leasing and geophysical program which has resulted in over 50 per cent of the total acreage in the district being under lease by major and independent companies, who are reported to have some 40 undrilled prospects to be explored during the year.

The development of the first commercial production below 10,000 feet in the Lafitte field in Jefferson Parish and the coring of an oil and gas sand below 12,000 feet at the Abbeville Prospect in Vermilion Parish has encouraged the drilling of deep tests to heretofore unexplored producing horizons which is expected to be the featured development in this district.

One of the most attractive areas, expected to share the majority of wildcatting activities, is the Atchafalaya Basin, extending in a northwest-southeast trend from St. Landry Parish to Terrebonne Parish, a distance of approximately 139 miles in length and from 25 to 35 miles in width. This area has been worked extensively with geophysical instruments and approximately 2,000,000 acres is said to be under lease. Several important prospects in this area include Golden Meadows in Lafourche Parish, Spanish Lake in Iberia and St. Martin parishes, Lafourche Crossing, Lake Verrett and Northeast St. Martinsville in Iberia and St. Martin parishes.

Successful development around the flanks of several old salt dome structures including Jennings, in Acadia Parish, New Iberia in Iberia Parish and Hackberry in Cameron Parish has been instrumental in the releasing of considerable acreage around other old salt dome structures and an increase in drilling activity can be expected.

Along the Texas Gulf Coast two recent discoveries along the "Conroe trend" in Polk and Hardin counties have revived interest in that area and a general leasing campaign is taking place which should result in numerous tests being drilled. Shortly after the discovery of the Conroe field in Montgomery County, practically all acreage along this trend which extends into Louisiana was under lease, but was dropped after several failures had been drilled. Near the coast line much exploration can be expected in Wharton, Matagorda and Brazoria counties due to the development of commercial production from 9,000-foot horizons at the Bay City and Old Ocean fields. A recent survey made of the drilling prospects in that territory indicates no large increase in wildcat activities during the year.

Southwest Texas

Although wildcatting activity will continue to cover nearly every county in Southwest Texas during the coming year, the greatest search for new production is anticipated along the lower coastal area, extending from Aransas County on the northeast to Cameron County at the mouth of the Rio Grande. The success of wildcatters in that area over the past year, coupled with the extensive leasing and geophysical programs carried out along the coast in the past several months, point to a large volume of wildcat drilling to be done there in 1937.

Two sections of the Lower Gulf Coast seem particularly slated for considerable exploration. Aransas County, which received its first production last year, has been the scene of an active leasing play recently, and although few plans have been announced for specific tests, a number of operators are expected to drill in the Rockport area shortly.

The Lower Rio Grande Valley is expected to be an important wildcatting area in 1937, in view of the large blocks of acreage leased throughout the district. Cameron and Willacy counties, particularly have seen considerable lease play, and the discovery of production in the La Sal Vieja field of Willacy County will further induce exploration. In Hidalgo County three deep tests were drilling at the end of the year, and their success will bring further activity to that section also.

In the Corpus Christi district, including Nueces, San Patricio, Jim Wells and Kleberg counties, the wildcatting activity which was strong throughout 1936 will carry over into this year. Leasing of submerged lands has been marked along the coast of Nueces and Aransas counties. A growing practice in that area is the reworking and deepening of old abandoned wildcats in search of production in the deeper horizons which have been opened during the past year in both wildcat and proven areas.

Successful operations in the Fault Zone, particularly Guadalupe and Caldwell counties will draw wildcatters to that area, and the Edwards Plateau, which has been slated for considerable

drilling as large lease blocks near the expiration date, may see a revival in activity.

The Laredo district, for several years an outstanding wildcat territory, will doubtless be the scene of much further operation of that nature, centering as in the past, in Duval, Webb and Zapata counties. In the section lying northeast of those counties, and comprising Live Oak, Bee, Karnes and Wilson counties, wildcatting on a large scale is not anticipated.

East Texas

During 1936 wildcatting in the East Texas district assumed a different trend than heretofore, due principally to the discovery of deep oil, from the Paluxy sand, member of the Trinity, at Talco, in northwestern Titus County, in February, and another Paluxy sand pool at Sulphur Bluff in Hopkins, in July. Previously there had been few tests drilled below the Woodbine sand for production in the district. One distillate and heavy gas well was completed in the Cayuga field, in northern Anderson County, from the Glen Rose, lower member of the Trinity, a couple of years ago, which led operators to give more consideration to drilling for production below the Woodbine.

Blocks throughout the district which had been tested for Woodbine sand production, and were found dry in that horizon, became important after the Trinity well was brought in in the Cayuga field.

The Talco and Sulphur Bluff fields are located on the extension of the Mexia Fault zone, consequently a heavy lease play took place along this fault after their discovery. The two most interesting fault line blocks are located at Campbell and at Quinlan, in Hunt County. The Quinlan block is now being tested by the Superior Oil Co. of California, and the Stanolind Oil & Gas Co. is expected to start a test on its Campbell block within the next two or three months.

During 1937 the wildcat exploration play will continue along the Mexia fault until at least the better appearing structures and blocks are tested, the less favorable ones being left until later. The favored structures, off the fault and in other parts of the district, will also be tested. It is believed that tests dry in the Woodbine zone will be carried down in quest of Trinity production.

One deep test reported for future drilling is to be sunk on the east side of the Van field in Van Zandt County. A previous deep test drilled by the Pure Oil Co. on the northwest edge of the field proved dry in the Trinity, but regardless of this fact the Tide Water Oil Co. has taken many leases skirting the field.

The Blackfoot area in Anderson County is also to receive a deep test at once. This structure has proven barren in the Woodbine, but is still interesting from a Trinity standpoint.

Two deep holes will be drilled in Hunt County, one 5 miles northeast of Lone Oak and the other 2 miles southwest of Wolfe City. They will also be important tests for this fault line county. Two deep ones are going down in Fannin and one in Freestone County. Dallas County, which is west of the East Texas Basin, and which has attracted but scant attention heretofore, is also getting a deep test about 6 miles west of Longmire, or 3 miles east of Grapevine, and another test is scheduled to be drilled a couple of miles west of Irving, in the same county.

West Texas

Five discovery wells in Yoakum, Cochran and Dawson counties, all in the northern part of the West Texas district, will result in wildcatting being extended in these and adjacent counties to a marked degree this year.

Many blocks taken in 1927 will be tested in 1937 before leases expire on them.

The northeast corner of Winkler County is to get another test. Reeves County will receive a test near Toyah at once and Culbertson County is also to be tested immediately. Two wells are preparing to get under way in Presidio County, on the western side of the basin.

The Schleicher County test of the Homestead Oil & Gas Co. on the Judkins and Spencer ranch, in the W. W. Russell Grantee Survey, about 14 miles southeast of Eldorado, has been making some high-gravity oil from a plugged-back depth of 5,912 feet, the oil coming from the Ellenberger lime between 5,905-15 feet, and this showing, even though the well may not make a commercial producer, will lead to other deep wildcats in that county, which is on the south end of the district, and in the Edwards Plateau region.

Arkansas-Louisiana

Extensive leasing during the year 1936, together with a wide growing interest in the deeper possibilities in the Lower Trinity throughout the Sabine Uplift territory of Arkansas-Louisiana and East Texas, promises increasing wildcat activity during the new year.

Practically all companies in this territory have included large sums in their annual budgets for exploratory work on their newly assembled blocks, which almost without exception have been detailed by seismograph. Standard Oil Co. of Louisiana in particular is planning on an extensive wildcatting campaign upon several of its large and promising blocks. Other producers are known to have large parcels of lands favorably mapped by geophysical crews, which are to be developed during 1937. Deep Rock and Skelly Oil companies are newcomers to the territory and plan to enter into the activity here. Of particular note is the fact that a great number of companies at this time maintain large land, geological and scouting offices at Shreveport, but do not have any production at all. Among such are the Seaboard, Atlantic, Mid-Continent, Shell, Sinclair Prairie and others. These offices are engaged in compiling data, watching developments very closely, hoping to "break into production" if developments permit.

Deeper exploration of old and shallow pools is expected to continue in 1937. The most promising of such pools for deeper exploration, and which have not as yet had adequate deep testing, are

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Arkansas

Exploration of the Permian lime on the northwestern flank of the Smackover field in Arkansas is expected during 1937. The 1936 discovery here was on the northeastern flank.

A 5,000-foot test to contract depth is definitely assured for the recently discovered Troy field in Nevada County, where present production is being obtained from the Nacatoch at 1,200 feet and the Tokio at 2,200 feet.

Florida

A magnetometer survey of lower Florida was under way as the year opened, and exploratory drilling may follow this survey if indications prove favorable.

Mississippi

Two important deep tests are expected to be completed in 1937, both of which are now drilling. State of Mississippi No. 2 fee, in the heart of the Jackson gas field, is being drilled as a deep test in search of oil. Sun Oil Co. is drilling below 2,500 feet in their proposed 10,000-foot test of their extensive block in Lamar County.

Alabama

Arkansas Fuel Oil Co. is spudding in a wildcat in the NE section 4-5n-20w, to be known as No. 1 McCune, a deep test of the section.

The state geological division recently completed a magnetometer survey of southwest Alabama which will be somewhat of a guide to future development in the state.

Rocky Mountain Area

Colorado and Wyoming are scheduled for the biggest wildcat campaign in 1937 of any year since the boom periods of many years ago. Montana has in sight no particular trend of exploration except for normal prospecting and the probable wildcatting of several structures along the Baker-Glendive anticline in the eastern part of the state.

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Western and northwestern Colorado and southwestern Wyoming will receive more attention than usual due to the discovery of oil in Tertiary beds on the Powder Wash structure in Moffat County, Colorado. There are numerous untested Tertiary structures in these districts and at least 10 wildcats are scheduled for drilling in 1937. These are widely scattered on as many separate structures and some of them, where depths will permit, will test not only the Tertiary formations but older horizons. Most of this drilling will be in Rio Blanco and Moffat counties in Colorado and Sweetwater County, Wyoming. Much of the acreage blocked up in these areas is held under prospecting permits.

Eastern Colorado, a district 100 by 150 miles in extent, has around 4,000,000 acres under lease to majors and these blocks call for heavy rentals. While the plans of the wildcatters have not yet been definitely released, it is expected that at least six wells will be started in this district early in the year. The extent of the play will depend to some extent upon the geological information yielded by the test now drilling in Kiowa County by the Gulf Oil Corp. The south central part of the state, near the New Mexico line, will also come in for attention. The William E. Hughes Estate, which developed a new field in Archuleta County in 1936, has three or four structures on the same trend as the Gramps pool under lease and is expected to explore several of these, probably including one test to the Pennsylvanian horizon. Prospecting in the natural basins in the central mountainous area and along the east front of the mountain range is expected to proceed on a normal scale, but not to the extent of the other districts.

The discovery of a 2,000-bbl. well in the Pennsylvanian on the Wertz dome in Carbon County, south central Wyoming, along with previous discoveries in that area of high gravity crude in the Sundance, is expected to result in the testing of several structures not heretofore drilled as well as wildcatting to deeper formations on some of the older operations which had small production or good shows in younger formations. Campbell County, the center of an enormous basin around which is located the Salt Creek, Big Muddy, Lance Creek and other producing fields, has received much attention recently by major companies which have done extensive geological work and leased up large blocks and one or two tests are due for drilling this year. One test to the Pennsylvanian will be drilled near Dewey, in Weston County, and structures down the eastern side of Wyoming will be tested in at least two or three instances.

The major Montana play will be in the eastern part of the state where the Montana-Dakota Utilities Co. made a discovery in 1936 on the Cedar Creek (Baker-Glendive) anticline, a fold which can be traced for more than 100 miles and upon which are a number of local domes. Exploration in fault blocks around producing fields in the Big Horn Basin in Wyoming will continue on about the same scale as in the past year. Utah will have two or three wildcats drilled during the year.

Michigan

As 1937 opened and Michigan wildcatters had just completed their all-time record year of activities during 1936, their eyes were turned toward the north central counties of the Lower Peninsula as the probable scene of greatest activity during coming months.

The first public auction of state-owned lands, held January 4 at Lansing under the auspices of the Michigan Conservation Department, revealed this northward trend to a marked degree.

In response to multiple inquiries for rights to drill on state lands in the northern counties, a number of tracts covering nearly 10,000 acres were offered in Deep River, Clayton, Mason and Turner Townships of Arenac County; Frost Township, Clare County; Sherman Township, Isabella County; Greendale and Lee Townships, Midland County; Norwich Township, Missaukee County; Sylvan Township, Osceola County, and Lake Township, Roscommon County.

Recent development of new discovery wells in Clayton Township, Arenac County; Buckeye Township, Gladwin County, and even in Sherman and North Vernon Townships, Isabella County, has greatly heightened interest in the two tiers of

counties north of the previously developed fields.

Since the state owns the great bulk of acreage in these northern counties, increased activity in auctions is anticipated at Lansing during 1937.

Even the Upper Peninsula is expected to witness same increase in wildcatting this year because of light shows of oil and gas in a Garfield Township, Mackinac County, wildcat, testing the Trenton limestone but forced to suspend operations because of heavy snow. Another Upper Peninsula test which probably will be completed in 1937 has been shut down for months on Drummond Island, in Township 41n-7e, in Drummond Township, Chippewa County.

California

Exploration work in California in 1937 is expected to be statewide in scope as indications during the past year reveal the fact that it is imperative that prospectors discover new gas fields as well as oil fields due to the substantial demand for natural gas in the state extending from San Diego in the south to San Francisco, Sacramento and Stockton in the north. This is true because the supply of natural gas in the Kettleman North Dome field is showing an abnormal decline and operators there are anxious to conserve natural gas as by doing so they will greatly stimulate future recovery of crude oil. Increased wildcat drilling is expected to be conducted in the north central part of the state during 1937 as exploration work within the past two years has resulted in the discovery of the Tracy, Rio Vista and McDonald Island gas fields in the San Francisco Bay region.

Discovery of a new oil field by Shell Oil Co. in the Ten Section district of Kern County in 1936 and subsequent discovery of an oil field by Standard Oil Co. in the Greeley area will greatly stimulate exploratory work in the San Joaquin Basin, especially along the two lines of possible folding extending southeastward from the Semi-Tropic and Buttonwillow gas fields to the Ten Section and Greeley oil fields. If the hypothesis of two parallel lines of folding is found to be correct, oil men anticipate the discovery of several new fields along these two lines of possible shearing. Most of California's oil fields are located en echelon along definite lines of shearing.

Due to extensive leases acquired in the area between Semi-Tropic and Greeley and between Buttonwillow and Ten Section, that area is expected to see the drilling of several wildcats during 1937. Showings of natural gas in the Wasco district of Kern County may also result in the drilling of additional tests in this district, especially to the north. It is unnecessary to say that additional wildcat drilling will be undertaken in the Tejon district located in the extreme southern end of the San Joaquin Basin as showings found by Reserve Oil & Gas Co. in 1936 were too important to pass up without a further test. The San Emidio district of Kern County will also see additional exploration and it seems a foregone conclusion that new work will be started in the Jasmine area of Kern County. Bandini Petroleum or Wilshire Oil Co. are scheduled to start a wildcat a few miles south of the Fruitvale field within another 90 days.

Monterey County will probably see the drilling of several wildcats in 1937 and from present indications San Luis Obispo County will receive a thorough going over during the next 12 months. As a result of Barnsdall Oil Co.'s wildcat in the Newhall district, the western end of Los Angeles County and the eastern end of Ventura County will receive more attention during 1937. For many years operators have been of the belief that Los Angeles Basin has received its maximum share of exploration work, but Hogan Petroleum and other operators have been drilling a series of core holes in areas that show some promise and this company is expected to undertake exploration work in the southern part of the state early in 1937. The area to be tested is located between Santa Fe Springs and West Coyote. Approximately 2,500 acres have been leased. Shell Oil Co. recently acquired approximately 1,200 acres between Norwalk and Carmelita, not far from Hogan Petroleum Co.'s holdings, and a series of geophysical tests will be made before spotting the first well. Considerable leasing has been done in the Anaheim district of Orange County and an early test is expected to be undertaken within another 60 days.

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World Crude Oil Production Exceeds Previous Year 135,590,000 Bbls.

By H. STANLEY NORMAN

World crude oil production soared to another high record in 1935 increasing 135,590,000 bbls. to the all-time peak of 1,779,767,000 bbls. and would have gone approximately 8,000,000 bbls. higher had not a labor strike in Venezuela halted Lake Maracaibo operations for the last six weeks of the year.

Leading all countries in increased production was the United States. This nation's crude production for 1936 reached 1,089,014,000 bbls., or 98,394,000 bbls. above 1935 and 84,747,000 bbls. above 1929 when the previous record was established. Although the percentage of production increases for 1936 over 1935 in some smaller producing countries exceeded that registered in the United States, which was 9.93 per cent, none approached this country in actual volume.

While the U.S.S.R.'s importance as a world petroleum marketing factor has been reduced to a negligible quantity, that country's production increase of 12,200,000 bbls. to a total of 193,000,000 bbls. ranked immediately under the United States in actual output and in volume of gain.

On the basis of data available now, which is subject to slight revision in some of the more remote and small producing countries, all excepting Poland and Egypt shared to some extent in boosting world production to its new record. Increases were particularly small in Mexico and in the Dutch (Netherlands) East Indies in comparison with their positions among the first seven producing countries.

Japan, launched on a program of supplying a greater portion of its petroleum consumption, is credited with the greatest percentage increase over 1935, but the country's output of 2,400,000 bbls. is entirely without importance both in light of world production and in supplying its own demand.

VENEZUELA AFFECTED BY STRIKE

It is estimated that approximately 8,000,000 bbls. of crude which normally would have been produced from Venezuela in 1936 remained in the ground. The labor strike which practically halted Lake Maracaibo producing operations during the last month or more of the year reduced the Venezuela crude oil production increase to 4,339,000 bbls. While Venezuela's actual production of 153,315,000 bbls. established a new record for the country and maintained without effort its position as the third largest petroleum producer in the world, it was short of normal expectancy. On the basis of normal production conditions, the country would have probably exceeded 165,000,000 bbls. for 1936. In addition to the labor strike in December, pumps were also stilled for about two weeks during June when labor agitators attempted to speed up consideration of a labor law then resting in the legislature.

The 1935 trend in Iran was reversed last year and the country's production of 62,850,000 bbls. was 10 per cent higher than during the preceding year. The increase of 5,719,000 bbls. was, in a measure, indicative of world consumption since withdrawals from Anglo-Iranian Oil Co.'s properties are gauged entirely by demand. Furthermore, refining facilities at Abadan have been improved and expanded permitting manufacture of products in volume and quality to compete with rival concerns in common markets. Iraq's production, estimated at 30,600,000 bbls., an increase of 2,729,000 bbls., or 9.5 per cent, was a new record for that country. The daily average of 83,600 bbls. was not far short of the pipe line capacity from Kirkuk to the Mediterranean Sea at Tripoli and Haifa, which is approximately 85,000 bbls. daily.

With production calculated at 3,600,000 bbls. for the year in Bahrein Island, that Persian Gulf country assumed a more important role in 1936. However, by the middle of 1937, Bahrein's production probably will have been increased gradually to not less than 20,000 or 22,000 bbls. daily. Refining capacity available to Bahrein Island crude production did not exceed 10,000 bbls. at any time during 1936. Further production restrictions were imposed by irregular boat schedules. In addition, the arrangement for marketing Bahrein petroleum through facilities of the Texas Corp., was not negotiated until the middle of the year. Consequently, daily average production for the last half of 1936 materially exceeded the figure spread over the entire year.

INCREASE IN DUTCH EAST INDIES

Development of previously proven property in the Dutch East Indies fields was sufficient in 1936 to provide an increase of 600,000 bbls. to a total of 51,800,000 bbls., but it was only 1.1 per cent greater than in 1935. Considerable wildcat drilling will be carried on in various parts of Sumatra, Java and Borneo in 1937 following intensive detailed geological work participated in by all interested companies. Core drilling machines have been continuously engaged in northern Borneo and seismograph crews have been detailing a part of the Sumatran eastern coast between the Djambi and Atjeh fields.

Internal conditions in Mexico probably have contributed to failure of that country to share proportionately with other producing countries in supplying greater crude demand. The Poza Rica field, which produces more than 40 per cent of Mexico's current crude output, is a prolific area, but is able to do little more than offset with increased production the normal decline in older fields. Labor difficulties, either actual or threatened, handicapped the petroleum industry in Mexico throughout the year. Under uncertainties which existed during the year, foreign corporations were given little incentive to increase their drilling programs and expand their investments. Furthermore, barriers were thrown up in the matter of obtaining or retaining prospective oil lands. There is more than a possibility, however, the usually well-informed believe, that part of northeastern Mexico is potential oil land and several companies are engaged in preliminary and secondary exploration there which South America's increase may have a bearing on 1937 production.

SOUTH AMERICA'S INCREASE

Along with Venezuela and Mexico all other South American oil-producing countries increased their output in 1936. Colombia's production was increased to 18,756,000 bbls., a gain of 1,521,000 bbls., or 9.5 per cent over 1935 and probably set a new yearly peak. Colombia's long-term future oil-producing rank is dependent to some extent on the Barco concession in the extreme eastern part of the country, bordering Venezuela. Considerable production has been proven there, but it is not included in actual yield from Colombia since none is yet reaching channels of trade. Wildcat exploration will be pushed in 1937 both in the Barco and in other unexplored territories while Tropical Oil Co., producing subsidiary of International Petroleum Co., Ltd. (Canada), probably will continue routine drilling of its proven and prospective property. All of Colombia's crude production considered in the world tabulation is controlled by Tropical. Peru also ascended to a new peak in crude production accounting for 17,320,000 bbls.

Adoption of advanced production methods and intense drilling activity by Y.P.F., government controlled oil company, were contributing factors in Argentina's increased crude output. The 1936 production of 14,950,000 bbls. was less than 5 per cent above that registered in 1935 from Argentina, and the country remains essentially an importer of crude or refined products since yield does not equal consumption.

Successful extension of older fields in Trinidad has aroused new interest in that British colony and the stimulation of accelerated exploration pro-

(Continued on Page 159)

World Crude Oil Production, in Barrels

	1936 (estimated)		1935		1936	Per cent
	Total	Daily	Total	Daily	increase	increase
United States	1,089,014,000	2,975,447	990,620,000	2,714,027	98,394,000	9.93
U.S.S.R. (including Sakhalin)	193,000,000	527,322	180,800,000	496,342	12,200,000	6.74
Venezuela	153,315,000	418,893	148,976,000	408,153	4,339,000	3.02
Rumania	66,100,000	180,601	62,394,000	170,942	3,706,000	5.90
Iran (Persia)	62,850,000	171,721	57,131,000	155,317	5,719,000	10.00
Netherlands East Indies (including British Borneo)	51,800,000	141,530	51,200,000	140,274	600,000	1.10
Mexico	40,300,000	110,109	40,240,000	110,024	60,000	0.10
Iraq	30,600,000	83,600	27,871,000	76,375	2,729,000	9.50
Colombia	18,756,000	51,246	17,235,000	47,222	1,521,000	9.50
Peru	17,320,000	47,322	17,065,000	46,753	255,000	2.30
Argentina	14,950,000	40,800	14,285,000	39,137	665,000	4.80
Trinidad	13,400,000	36,612	11,671,000	31,975	1,729,000	14.80
British India (Burma)	9,600,000	26,230	9,200,000	25,205	400,000	4.30
Poland	3,600,000	9,836	3,767,000	10,320	*167,000	*4.40
Bahrein Island	3,600,000	9,836	1,265,000	3,466	2,335,000	18.40
Germany	3,300,000	9,290	2,950,000	8,109	350,000	11.80
Japan	2,400,000	6,560	1,925,000	5,374	475,000	24.60
Equador	1,900,000	5,191	1,752,000	4,800	148,000	8.40
Canada	1,507,000	4,118	1,430,000	3,917	77,000	5.10
Egypt	1,155,000	3,155	1,200,000	3,290	*45,000	*3.90
Others	1,300,000	3,552	1,200,000	3,290	100,000	8.30
Total	1,779,767,000	4,862,751	1,644,177,000	4,504,514	135,590,000	8.24

*Decreases.

Summary of Crude Oil Price Changes in 1936

OKLAHOMA AND KANSAS

Gravity—	Jan. 1	Jan. 9
Below 25	$.76	$.86
25-25.9	.78	.88
26-26.9	.80	.90
27-27.9	.82	.92
28-28.9	.84	.94
Below 29	.84	.94
29-29.9	.86	.96
30-30.9	.88	.98
31-31.9	.90	1.00
32-32.9	.92	1.02
33-33.9	.94	1.04
34-34.9	.96	1.06
35-35.9	.98	1.08
36-36.9	1.00	1.10
37-37.9	1.02	1.12
38-38.9	1.04	1.14
39-39.9	1.06	1.16
40 and over	1.08	1.18

Companies starting schedules below 29 gravity are Stanolind, Anderson-Prichard, Bell, Barnsdall, Champlin, Continental, Deep Rock, Dickey, Eason, El Dorado, Empire, Falcon, Globe, Gypsy, Johnson, Kan-o-Tex, National, Pepper, Sunray, Texas, Tide Water, Twin State, Vickers, and White Eagle. Starting below 25 gravity are Carter, Magnolia, Pure, Rock Island, Shell, Sinclair Prairie and Skelly.

NORTH LOUISIANA AND ARKANSAS

Gravity—	Jan. 1	Jan. 10
Below 25	....	$.78
25-25.9	....	.80
26-26.9	....	.82
27-27.9	....	.84
28-28.9	....	.86
Below 29	.79	....
29-29.9	.81	.88
30-30.9	.83	.90
31-31.9	.85	.92
32-32.9	.87	.94
33-33.9	.89	.96
34-34.9	.91	.98
35-35.9	.93	1.00
36-36.9	.95	1.02
37-37.9	.97	1.04
38-38.9	.99	1.06
39-39.9	1.01	1.08
40 and over	1.03	1.10

GULF COAST

	Jan. 1	Jan. 9	Jan. 16	Nov. 1
Cleveland, Tex.	$1.00	$1 10	$1.10	$1.10
Hardin, Tex ..	.93	1.03	1.03	1.03
Greta, Tex. ...	.80	.90	.90	.95
Refugio, Tex. heavy	.80	.90	.90	.95
Tomball, Tex.	1.15	1.30	1.30	1.30
Lafitte, La. ..	....	1.12	1.12	1.12
Livingston, La.	1.00	1.15	1.15	1.15
Bosco, La. ..	.90	1.00	1.05	1.05
Evangeline, La.	....	1.07	1.07	1.07
Welsh, La. ..	....	.96	.96	.96
O'Conner	....	....	....	.95
McFadden ...	....	....	....	.95
Satsuma	....	....	....	1.15
Heyser, light .	....	....	....	1.15
Heyser, heavy	....	....	....	.90
Placedo	....	....	....	.90
Plymouth	....	....	....	See gravity table for Gulf Coast pools.

Cleveland and Hardin by Magnolia; Greta by Texas Co.; Refugio by Humble; Tomball by Humble and Magnolia; Lafitte by Texas Co.; Bosco by Pure; Welsh and Evangeline by Stanolind Oil & Gas Co., and Livingston by Shell Petroleum Corp.

SALT CREEK, WYOMING

Gravity—	Jan. 1	Jan. 9
Below 25	....	.86
25-25.9	....	.88
26-26.9	....	.90
27-27.9	....	.92
28-28.9	....	.94
Below 29	$.84	$.94
29-29.9	.86	.96
30-30.9	.88	.98
31-31.9	.90	1.00
32-32.9	.92	1.02
33-33.9	.94	1.04
34-34.9	.96	1.06
35-35.9	.98	1.08
36-36.9	1.00	1.10
37-37.9	1.02	1.12
38-38.9	1.04	1.14
39-39.9	1.06	1.16
40 and over	1.08	1.18

CALIFORNIA CRUDE OIL PRICE CHANGES IN 1936

Gravity—	Richfield		Whittier La Habra		Montebello		Ventura Avenue	Olinda Brea Canyon		Athens Rosecrans		Mountain View		Elwood Terrace		Wheeler Ridge	
	Jan. 1	Feb. 26	Jan. 1	Feb. 26	Jan. 1	Feb. 26	Jan. 1*	Jan. 1	Feb. 26	Jan. 1	Feb.26	Jan. 1	Feb. 26	Jan. 1	Feb. 26	Jan. 1	Feb. 26
14-14.9	$.71	$.76	$.71	$.76	$ 72	$.77	....	$.71	$.76	....	....	....	....	....	....	....	....
15-15.9	.71	.76	.71	.76	.72	.77	....	.71	.76	..	....	....	....	....	....	....	....
16-16.9	.71	.76	.71	.76	.72	.77	....	.71	.76	....	....	....	....	....	....	....	....
17-17.9	.71	.76	.71	.76	.72	.77	....	.71	76	....	....	....	....	....	....	..	....
18-18.9	.71	.76	.71	.76	.72	.77	....	.73	78	....	....	....	....	....	....	....	....
19-19.9	.71	.76	.71	.78	.72	.77	....	.75	.81	....	....	$.65	$.70	....	....	$.65	$.70
20-20.9	.71	.78	.73	.82	.72	.77	....	.77	.84	....	....	.65	.70	....	....	.65	.70
21-21.9	.71	.80	.75	.85	.72	77	....	.79	.88	....	....	.65	.73	..	....	.65	.70
22-22.9	.73	.84	.77	.89	.72	.79	$ 73	.81	.92	....	....	.66	.77	....	....	.67	.72
23-23.9	.75	.88	.79	.93	.74	.82	.75	.84	.96	$.79	$.84	.67	.80	....	....	.69	.76
24-24.9	.77	.91	.80	.96	.76	.85	.77	.86	99	.81	.88	.69	.84	....	....	.71	.79
25-25.9	.79	.95	....	....	.78	.89	.79	.88	1.03	.83	.93	.71	.88	....	....	.73	.83
26-26.9	.81	.98	....	....	.80	.92	.81	.90	1.06	.86	.98	.73	.91	....	....	....	....
27-27.9	.83	1.02	....	....	.82	.96	.83	.92	1 10	.88	1.03	.76	.95	....	F.O.B.	....	....
28-28.9	.85	1.06	....	....	.83	.99	.85	....	1.14	.90	1.07	.78	.99	....	ship	....	....
29-29.9	.87	1.09	....	....	.85	1.03	.87	....	1.17	.93	1 12	.80	1.02	....	....	....	....
30-30.9	....	....	....	....	.87	1.07	.89	....	1.21	.95	1.17	.83	1.06	....	....	....	....
31-31.9	....	....	....	....	.89	1 11	....	....	1.24	97	1.22	.85	1.09	....	....	....	....
32-32.9	....	....	....	....	.91	1.14	....	....	1.27	1.00	1.27	.87	1.13	....	....	....	....
33-33.9	....	....	....	....	.93	1.18	....	....	....	....	1.32	89	1.17	$.99	$1.28	....	....
34-34.9	....	....	....	....	.95	1.22	....	....	....	....	1.37	.91	1.20	1.01	1.32	....	....
35-35.9	....	....	....	....	.97	1.25	....	....	....	....	1.42	....	....	1.03	1.35	....	....
36-36.9	....	....	....	....	.99	1.29	....	....	....	....	1.46	....	....	1 05	1.39	....	....
37-37.9	....	....	....	....	1.00	1.32	....	....	....	....	1.51	....	....	1.07	1.43	....	....
38-38.9	....	....	....	....	1.03	1.36	....	....	....	....	1.56	....	....	....	....	....	....
39-39.9	....	....	....	....	1.05	1.40	....	....	....	....	1.61	....	....	....	....	....	....
40-40.9	....	....	....	....	1.07	1.43	....	....	....	....	1.66	....	....	....	....	....	....

Gravity—	Santa Fe Springs		West Coyote Hills		Buena Vista Hills Midway-Sunset Lakeview area		Lost Hills		Alamitos Heights	Belridge		Rincon	Dominguez	Kettleman Hills		Coalinga	
	Jan. 1	Mar. 7	Jan. 1	Feb. 26	Jan. 1	Feb. 26	Jan. 1	Feb. 26	Jan. 1	Jan. 1	Mar. 7†	Jan. 1*	Jan. 1	Jan. 1	Feb. 26	Jan. 1	Feb. 26
14-14.9	....	....	$.73	$.78	$.65	$ 70	$.65	$.70	$.74	$.65	$.70	....	....	....	....	$.65	$.70
15-15.9	....	....	.73	.78	.65	.70	65	.70	.74	.65	.70	....	....	....	....	.65	.70
16-16.9	....	....	.73	.78	.65	.70	.65	.70	.74	.65	.70	....	....	....	....	.65	.70
17-17.9	..	....	.73	.78	.65	70	.65	.70	.74	.65	.70	....	....	....	....	.65	.70
18-18.9	....	....	.73	.78	.65	70	.65	.70	.74	.65	.70	....	....	....	....	.65	70
19-19.9	....	....	.73	.78	.66	.74	.68	.74	.74	.68	.74	....	....	....	....	.66	.71
20-20.9	....	....	.73	.80	68	.78	.71	.78	.74	71	.78	....	..	....	....	.67	.72
21-21.9	$.73	$.78	.75	.84	.71	.82	.73	.82	.74	.73	.82	....	....	....	....	.69	.74
22-22.9	.73	.78	.77	.88	.74	.87	.75	.86	.74	.75	.86	$.69	....	....	....	.71	.78
23-23.9	.73	.78	.79	.92	.77	92	.77	.90	77	.77	.90	.71	$.79	....	....	.73	.82
24-24.9	.75	.82	.81	.96	.80	.97	.80	.94	.80	.80	.94	.73	.81	....	....	.75	.86
25-25.9	.77	.86	.82	1.00	.83	1.01	.82	.98	82	.82	.98	.75	.83	....	....	.77	.90
26-26.9	.79	.90	.84	1.03	86	1.06	85	1.02	.85	.85	1.02	.77	.86	....	....	....	....
27-27.9	.82	.95	.86	1.06	.88	1.10	.88	1.06	.88	.88	1.06	.79	.88	....	....	..	....
28-28.9	.84	.99	.88	1 10	.91	1.15	.90	1.10	.90	.90	1 10	.81	.90	....	....	....	....
29-29.9	.86	1.03	.90	1.14	.94	1.20	.92	1.14	.93	.92	1.14	.83	.93	....	....	....	....
30-30.9	.89	1.08	.92	1.17	.97	1.25	.94	1.18	.95	.94	1.18	.85	.95	....	....	....	....
31-31.9	91	1.12	.94	1.21	.99	1.29	....	....	....	.95	1.20	....	97	....	....	..	....
32-32.9	.93	1.16	.96	1 25	1.02	1.34	....	....	....	.96	1.22	....	1.00	....	....	....	....
33-33.9	.95	1.20	.98	1.28	1.04	1.38	....	....	....	.97	1 24	....	....	$.95	$1.19	....	....
34-34.9	.98	1.25	1.00	1.32	....	....	....	....	....	.98	1.26	....	....	.97	1.23	....	....
35-35.9	1.00	1.29	....	....	....	....	....	....	....	.99	1.28	....	....	.99	1.27	....	....
36-36.9	1.02	1.33	....	....	....	....	....	....	....	1.01	1.30	....	....	1.02	1 31	....	....
37-37.9	1.04	1.37	....	....	....	....	....	....	....	1.03	1.32	....	....	1.05	1.35	....	....
38-38.9	1.07	1.42	....	....	....	....	....	....	....	....	....	....	....	1.08	1.39	....	....
39-39.9	....	....	....	....	....	....	....	....	....	....	....	....	....	1.11	1 43	....	....

Gravity—	Torrance		Seal Beach		Huntington Beach		Inglewood		Playa del Rey		Elk Hills		Lakeview area	Newhall, McKittrick, Kern River, Round Mountain		Signal Hill		Santa Paula‡	Orcutt‡
	Jan. 1	Feb. 26	Jan. 1	Feb. 26	Jan. 1	Mar. 7	Jan. 1	Feb. 26	Jan. 1	Mar. 7	Jan. 1	June 22	Jan. 1	Jan. 1	Mar. 7	Jan. 1	Mar. 7	June 22	June 22
14-14.9	$.75	$.80	$.74	$.79	$ 73	$.78	$.74	$.79	$.75	$.80	$.65	$.70	$.65	$.65	$.70	$.75	$.80	$ 70	....
15-15.9	.75	.80	.74	.79	.73	.78	.74	.79	.75	.80	.65	.70	.65	.65	.70	.75	.80	.70	....
16-16.9	.75	.80	.74	.79	.73	78	.74	.79	.75	80	.65	.70	.65	.65	.70	.75	.80	.70	.70
17-17.9	.75	.80	.74	.79	.73	.78	.74	81	75	.80	.65	.70	.65	.65	.70	.75	.80	.71	.70
18-18.9	.75	.82	.74	.79	.73	.78	.76	.84	.75	.80	.65	.70	.65	.65	.70	.75	80	.73	.72
19-19.9	.77	.85	74	.79	.74	.82	.77	.87	.76	.84	.66	.74	.66	.65	.70	.75	.82	75	.74
20-20.9	.78	.88	.74	.79	.76	85	.79	.90	.79	88	.68	.78	.68	....	....	.76	.85	.77	.77
21-21.9	.80	.91	.74	.79	.78	.89	.81	93	.81	.93	71	.82	.71	....	....	.78	.88	.79	.80
22-22.9	.81	.93	.74	.82	80	.92	.82	.96	.84	.98	.74	.87	.74	....	....	.80	.92	.82	.83
23-23.9	.83	.96	77	.86	.82	.96	.84	.99	.86	1 02	.77	.92	.77	....	....	.82	.95	.85	.86
24-24.9	.84	.99	.80	.91	.84	1 00	.86	1.02	88	1.06	.80	.97	.80	....	....	.84	.99	.87	.88
25-25.9	.86	1.02	.82	.95	.86	1.03	.87	1.05	.91	1 11	.83	1.01	.83	....	....	.86	1.03	.90	.93
26-26.9	.88	1.05	85	1.00	.88	1.07	.89	1.09	.93	1.16	86	1.06	.86	....	....	.88	1.06	.92	.93
27-27.9	....	....	.88	1.05	.90	1.11	.91	1 12	....	F.O.B.	.88	1.10	.88	....	....	.90	1.10	.95	....
28-28.9	....	....	.90	1.10	.91	1.14	.92	1.15	....	our	.91	1.15	.91	....	....	.92	1 14	.97	....
29-29.9	....	....	.93	1.15	93	1.18	.94	1.18	....	pipe	.94	1.20	.94	....	....	.94	1.17	.99	....
30-30.9	....	....	.95	1.19	.95	1.22	.95	1.21	....	line	97	1.25	.97	....	....	.96	1.21	1.01	....
31-31.9	....	....	....	....	....	....	.97	1.24	....	....	.99	1.29	.99	....	....	....	....	....	....
32-32.9	....	....	....	....	....	....	.99	1.27	....	....	1.02	1 34	1.02	....	....	....	....	....	....
33-33.9	....	....	....	....	....	....	..	....	....	....	1.04	1.38	1.04	....	....	....	....	....	....

*Posted by General Petroleum Corp. of California. †Posted by Union Oil Corp. of California. ‡Posted by Union Oil Co. All others by Standard Oil Co. of California.

GULF COAST, TEXAS AND LOUISIANA

Gravity—	Jan. 1 (1)	Jan. 1 (2)	Jan. 9
Below 20	$.82	$.82	$.92
20-20.9	.84	.84	.94
21-21.9	.86	.86	.96
22-22.9	.88	.88	.98
23-23.9	.90	.90	1.00
24-24.9	.92	.92	1.02
Below 25	....	....	....
25-25.9	.94	.94	1.04
26-26.9	.96	.96	1.06
27-27.9	.98	.98	1.08
28-28.9	1.00	1.00	1.10
Below 29	....	....	....
29-29.9	1.02	1.02	1.12
30-30.9	1.04	1.04	1.14
31-31.9	1.06	1.05	1.16
32-32.9	1.08	1.06	1.18
33-33.9	1.10	1.07	1.20
34-34.9	1.12	1.08	1.22
Below 35	....	....	....
35-35.9	1.12	1.09	1.22
36-36.9	1.12	1.10	1.22
37-37.9	1.12	1.11	1.22
38-38.9	1.12	1.12	1.22
39-39.9	1.12	1.13	1.22
40 and over	1.12	1.14	1.22

SOUTH CENTRAL AND SOUTHWEST TEXAS

	Jan. 1	Jan. 9	Nov. 1
Saxet	$.80	$.90	$.95
Mirando	.75	.85	.90
Pettus	1.05	1.25	1.25
Salt Flat*	.87	.97	.95
Salt Flat‡	.87	.97	.97
Darst Creek*	.87	.97	.97
Darst Creek†	.87	.97	.97
Luling	.75	.90	.90
Lytton Springs	.95	1.00	1.00
Duval County	.75	.85	.85
Port Lavaca	.80	....	....
Flour Bluff	See gravity table		

*Humble Oil & Refining Co. †Magnolia Petroleum Co., Gulf Pipe Line Co. and Texas Co. ‡Shell Petroleum Corp. Saxet posted by Humble and Texas; Mirando by Humble and Magnolia; Pettus by Humble; Salt Flat by Humble; Luling and Lytton Springs by Magnolia; Duval by Texas Co.

WEST TEXAS

	Jan. 1	Jan. 9
Crane, Upton, Howard, Glasscock and Mitchell counties	$.70	$.80
Winkler County	.75	.85
Lea County, N. Mex.	.75	.85
Pecos County*	.75	.85
Pecos shallow†	.65	.75

*Shell Petroleum Corp., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Petroleum Corp.

Note: For Humble, Magnolia and Texas Co.'s West Texas and Lea County prices see gravity table. Above prices are those of other buyers.

WEST TEXAS AND LEA COUNTY, NEW MEXICO

Gravity—	Jan. 1*	Jan. 9
Below 29	....	$.75
29-29.9	....	.76
30-30.9	....	.78
31-31.9	....	.80
32-32.9	....	.82
33-33.9	....	.84
34-34.9	....	.86
35-35.9	....	.88
36-36.9	....	.90
37-37.9	....	.90
38-38.9	....	.90
39-39.9	....	.90
40 and over	....	.90

*Prices were on flat price basis.

CARSON AND HUTCHINSON COUNTIES, TEXAS

Gravity—	Jan. 1	Jan. 9
Below 35	$.69	$.81
35-35.9	.71	.83
36-36.9	.73	.85
37-37.9	.75	.87
38-38.9	.77	.89
39-39.9	.79	.91
40 and over	.81	.93

PENNSYLVANIA GRADE OIL

Posted by Tide Water Pipe Co.	Jan. 1	Jan. 13	Sept. 18	Dec. 28
Bradford, Pa.	$2.30	$2.45	$2.45	$2.57
Allegany, N. Y.	2.30	2.45	2.45	2.57
Posted by South Penn Oil Co.:				
Pennsylvania Grade Oil in National Transit Lines (Bradford field)	2.30	2.45	2.45	2.57
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.02	2.17	2.17	2.32
Pennsylvania Grade Oil in Eureka Pipe Line Lines	1.97	2.12	2.12	2.27
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.82	1.97	1.97	2.12
Corning Grade Oil in Buckeye Pipe Line Co. lines	1.32	1.42	1.32	1.32
Posted by Pennzoil Co.				
Pennsylvania Grade Oil in National Transit Lines:				
Group A (Includes Cochran, Franklin, Hamilton and Doolittle districts.)	2.27	2.42	2.42	2.57
Group B (Includes Titusville district.)	2.26	2.41	2.41	2.56
Group C (Includes Turkey and Tidioute districts.)	2.25	2.40	2.40	2.55
Group D (Includes Bear Creek and Porkey districts.)	2.24	2.39	2.39	2.54
Groupe E (Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emlenton, Tiona, Lacy and Kinzua districts. Price depends on length of pipe line to plant at Oil City.	2.21	2.36	2.36	2.51
Posted by Pure Oil Co.				
Cabin Creek, W. Va.	1.97	2.12	2.12	2.27
Bradford Hollow, W. Va	1.97	2.12	2.12	2.27
Kelly Creek, W. Va.	1.97	2.12	2.12	2.27

GRAY COUNTY, TEXAS

Gravity—	Jan. 1	Jan. 9
Below 35	$.79	$.89
35-35.9	.81	.91
36-36.9	.83	.93
37-37.9	.85	.95
38-38.9	.87	.97
39-39.9	.89	.99
40 and over	.91	1.01

CENTRAL AND NORTH TEXAS

Gravity—	Jan. 1	Jan. 9
Below 29	$.79	$.89
29-29.9	.81	.91
30-30.9	.83	.93
31-31.9	.85	.95
32-32.9	.87	.97
33-33.9	.89	.99
34-34.9	.91	1.01
35-35.9	.93	1.03
36-36.9	.95	1.05
37-37.9	.97	1.07
38-38.9	.99	1.09
39-39.9	1.01	1.11
40 and over	1.03	1.13

EAST CENTRAL TEXAS

Gravity—	Jan. 1	Jan. 9
Below 29	$.79	$.91
29-29.9	.81	.93
30-30.9	.83	.95
31-31.9	.85	.97
32-32.9	.87	.99
33-33.9	.89	1.01
34-34.9	.91	1.03
35-35.9	.93	1.06
36-36.9	.95	1.07
37-37.9	.97	1.09
38-38.9	.99	1.11
39-39.9	1.01	1.13
40 and over	1.03	1.15

CONROE

Gravity—	Jan. 1	Jan. 9
35-35.9	$1.09	$1.24
36-36.9	1.11	1.26
37-37.9	1.13	1.28
38-38.9	1.15	1.30
39-39.9	1.17	1.32
40 and over	1.19	1.34

TALCO

	Jan. 1	Nov. 1
East Texas	....	.65

AFFILIATED COMPANIES

LAYNE-ARKANSAS CO., STUTTGART, ARK. —LAYNE-ATLANTIC CO., NORFOLK, VA.—LAYNE-CENTRAL CO., MEMPHIS, TENN.—LAYNE-NORTHERN CO., INC., MISHAWAKA, IND.—LAYNE-LOUISIANA CO., INC., LAKE CHARLES, LA.—LAYNE-NEW YORK CO., INC., NEW YORK CITY—LAYNE-NORTHWEST CO., MILWAUKEE, WIS.—THE LAYNE-OHIO CO., COLUMBUS, OHIO—LAYNE-BOWLER NEW ENGLAND CO., BOSTON, MASS.—LAYNE-TEXAS CO., HOUSTON, TEX. —LAYNE-WESTERN CO., KANSAS CITY, MO., CHICAGO, ILL., AND MINNEAPOLIS, MINN.—INTERNATIONAL WATER SUPPLY LTD., FORT ERIE, N., ONTARIO, CANADA.

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EAST TEXAS

	Jan. 1	Jan. 9
East Texas	$1.00	$1.15

ANAHUAC, DICKINSON, FLOUR BLUFF* AND TURTLE BAY*

Gravity—	Jan. 1	Jan. 9
30-30.9	$.94	$1.04
31-31.9	.96	1.06
32-32.9	.98	1.08
33-33.9	1.00	1.10
34-34.9	1.02	1.12
35-35.9	1.04	1.14
36-36.9	1.06	1.16

*Effective November 1.

37-37.9	1.08	1.18
38-38.9	1.10	1.20
39-39.9	1.12	1.22
40 and over	1.14	1.24

IOWA AND CAMERON MEADOWS, TEXAS

Gravity—	Jan. 1	Jan. 9
Below 20	....	$.82
20-20.9	....	.84
21-21.9	....	.86
22-22.9	....	.88
23-23.9	....	.90
24-24.9	....	.92
25-25.9	....	.94
26-26.9	....	.96
27-27.9	....	.98
28-28.9	....	1.00
29-29.9	....	1.02
30-30.9	....	1.04
31-31.9	....	1.06
32-32.9	....	1.08
33-33.9	....	1.10
34-34.9	....	1.12
35-35.9	....	1.12
36-36.9	....	1.12
37-37.9	....	1.12
38-38.9	....	1.12
39-39.9	....	1.12
40 and over	....	1.13

NORTH LOUISIANA AND ARKANSAS

	Jan. 1	Jan. 9	Jan. 10	Jan. 16
Smackover, Ark., all grades*	$.70	$.70	$.75	$.75
Smackover, Ark., all grades†	.70	.80	.80	.80
Tullos and Urania	.87	.87	.97	.97
Nevada, Ark.	.60	.60	.65	.65
El Dorado East field	.70	.80	.80	.75
Converse, Holly, Pleasant Hill and Zwolle, La.*	1.03	1.03	1.10	1.10
Lisbon, Ark.*	1.03	1.03	1.10	1.10
Elm Grove, La.	.75	.75	.80	.80

*Standard Oil Co. of Louisiana, Gulf Refining Co., Louisiana Oil Refining Co., Texas Co. (effective January 14) and Magnolia Petroleum Co. (effective January 16). Urania by H. L. Hunt Co. and Louisiana Oil Refining Co. Nevada by Standard of Louisiana. El Dorado East field by Magnolia Petroleum Co. Phillips Petroleum Co. (effective January 17) posts 75 cents for all grades in Union and Ouachita counties, Arkansas.

MIDDLE WESTERN STATES

OHIO OIL CO.

	Jan. 1	Jan. 9	Jan. 10	Jan. 13	Jan. 14	June 15	Sept. 16	Sept. 22	Nov. 1
Lima	$1.15	$1.15	$1.25	$1.25	$1.25	$1.25	$1.25	$1.15	$1.15
Illinois	1.13	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23
Princeton, Ind.	1.13	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23
Midland, Mich.*†	1.22	1.22	1.22	1.32	1.32	1.42	1.32	1.32	1.32
W. Branch, Mich.	.96	.96	.96	.96	1.16	1.26	1.16	1.16	1.16
Muskegon, Mich.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Eastern Kentucky:									
Big Sandy River	1.20	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Kentucky River	1.28	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38
Western Kentucky	1.13	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.28

*Posted by Pure Oil Co. and includes Greendale, Porter, Beaverton and Crystal crudes. West Branch, Mich., by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Oceana posted by Old Dutch Refining Co. and Naph-Sol Refining Co. †Old Dutch Refining Co., $1.37, September 28.

ROCKY MOUNTAIN STATES

	Jan. 1	Jan. 9	Jan. 29	Feb. 24	June 5	Nov. 1	Nov. 4
Iles, Colo., light*	$.96	$1.06	$1.06	$1.06	$1.06	$1.06	$1.06
Iles, Colo., heavy*	.90	1.00	1.00	1.00	1.00	1.00	1.00
Greybull, Wyo.*	1.18	1.28	1.28	1.28	1.28	1.28	1.28
Torchlight, Wyo.*	1.18	1.28	1.28	1.28	1.28	1.28	1.28
Grass Creek, Wyo., light*†	1.18	1.18	1.18	1.18	1.18	1.18	1.18
Grass Creek, Wyo., heavy*†	.62	.72	.72	.72	.72	.72	.62
Hamilton dome, Wyo.*	.57	.67	.67	.67	.67	.67	.57
Elk Basin, Wyo., light*†	1.18	1.18	1.18	1.18	1.18	1.18	1.18
Frannie, Wyo., heavy*	.70	.72	.72	.72	.72	.72	.62
Frannie, Wyo., light*	.62	.82	.82	.78	.78	.78	.70
Hogback, N. Mex.*	1.11	1.21	1.21	1.21	1.21	1.21	1.21
Pondera, Mont.*	1.25	1.10	1.05	1.05	1.05	1.05	1.05
Salt Creek, Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.							
Big Muddy, Wyo.†	1.01	1.11	1.11	1.11	1.11	1.11	1.11
Rocky Creek, Wyo.†	1.02	1.12	1.12	1.12	1.12	1.085	1.085
Artesia, N. Mex.‡	.75	.80	.80	.80	.80	.80	.80
Maljamar, N. Mex.‡	.75	.80	.80	.80	.80	.80	.80
Fort Collins and Wellington, Colo.‡—see note.							
Florence, Colo.	.90	.98	.98	.98	.98	.98	.98
Lance Creek, Wyo.	.92	.85	.85	.85	.85	.85	.85
Lost Soldier, Wyo.	.88	.88	.88	.88	.88	.88	.88
Hudson, Wyo.	.65	.65	.65	.65	.65	.65	.65
Sunburst, Mont.	1.20	1.25	1.25	1.25	1.15	1.15	1.15
Cat Creek, Mont.	1.07	1.28	1.28	1.28	1.28	1.28	1.28
Cut Bank, Mont.	....	1.45	1.45	1.45	1.35	1.35	1.35

*Stanolind Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co.

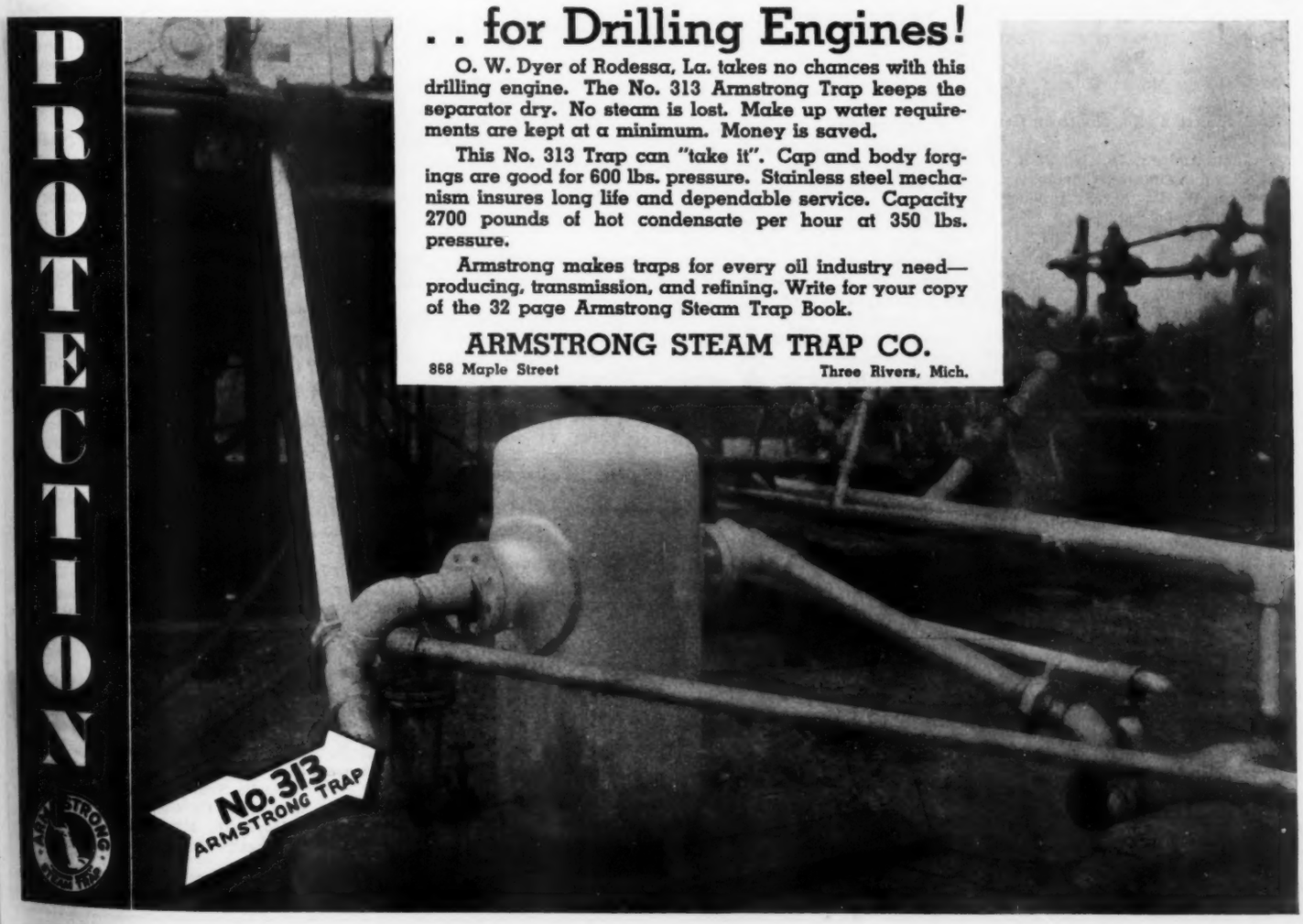
Note—Fort Collins and Wellington are not posted, price 5 cents under quotation of Salt Creek crude of like gravity (Fort Collins 36°; Wellington 33°). *Stanolind Oil and Gas Co. †Ohio Oil Co. ‡Continental Oil Co. Cut Bank by Toronto Pipe Line Co.

CANADIAN FIELDS

Ontario:*	Jan. 1	Feb. 3	Dec. 16
Petrolia	2.10	2.10	2.10
Oil Springs	2.17	2.17	2.17
Turner Valley, Alberta Province:†			
Clear naphtha	2.55	2.70	2.60
Discolored naphtha, 65 gravity and higher	2.37	2.46	2.36
Discolored naphtha and crude oil, 40-40.9 gravity	(‡)	(‡)	1.55

Increasing 3 cents for each degree of gravity with top price for 64-64.9 gravity $2.27. These prices delivered field tankage.

*Imperial Oil Co., Ltd. †Imperial Oil Co., Ltd., and Regal Oil & Refining Co. On crude oil alone British American Oil Co. posted above prices on December 9, 1936. ‡Turner Valley crude was on flat basis up to December 16, as follows: On January 1, 50 gravity crude, $2.19; 45 to 49.9 crude, $2.07; 40 to 44.9 crude $1.50. On February 3 crude up to 50 gravity advanced .5 cent and 50 gravity advanced 12 cents.



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Death Entered All Ranks in the Oil and Gas Industry in the Past Year

The Grim Reaper took a large toll of lives of men engaged in the oil and gas industry in 1936, no branch of the business having been spared. Following are the names of the departed ones whose passing was recorded in the Oil and Gas Journal during the year:

A

Abbey, Frank R., 60, president, Sands Petroleum Co., Essex, Conn., October.

Abrams, John, 81, oil producer, Bradford, Pa., December 16.

Allen, Ernest R., 52, oil field contractor, Longview, Tex., August.

Ambister, Hubert, 45, attorney, Magnolia Petroleum Co., Oil City, Pa., September.

Andrews, Dr. C. A., production engineer, Anglo-Iranian Oil Co., Ltd., July 10.

Armstrong, Robert E., independent oil operator, Raton, N. Mex., December.

Arthurs, J. C., oil operator, Uhrichsville, Ohio, April 25.

Atkins, C. W., Wellington Oil Co. of Delaware, San Antonio, Tex., November.

Ayling, Ellis L., 66, Bartlesville, Okla., June.

Ayres, A. J., Nueces County, Texas, May.

B

Bell, George M., 52, Calgary, Canada, April.

Bell, Robert A., 73, Montreal, Canada, May.

Bennett, Andrew, 78, Canadian oil man, Petrolia, Ontario, Canada.

Bickley, W. P., 79, oil producer, Electra, Tex., February.

Bird, John, 53, Shreveport, La., February 8.

Bisett, Charles F., oil producer, Tulsa, October 6.

Blake, James F., 62, general superintendent, Sinclair Prairie Pipe Line Co., Tulsa, June 1.

Blocker, L. O., 53, Breckenridge, Tex., May.

Boggs, Paul N., 53, former vice president Union Oil Co. of California, Inez, Texas, October.

Bonsell, W. F., 59, pipe line superintendent, United Gas Co., Edna, La., February 27.

Boone, Garrett, 31, independent operator, Houston, Tex., August.

Boultbee, William W., 57, secretary and treasurer, Home Oil Distributors, Ltd., Vancouver, British Columbia.

Bradley, George H., 54, oil operator, Wichita Falls, Tex., April.

Bresan, Thomas E., 44, Socony-Vacuum Oil Co., New York, May.

Bridwell, Q. V., 46, geologist, Continental Oil Co., Ness City, Kans., October 25.

Brown, Albert, 72, retired, formerly vice president and general manager Oil Well Supply Co. of California, West Los Angeles, Calif., December.

Brown, Frederick C., 64, engineer, Canadian Oil Companies, Ltd., Petrolia, Ontario, April.

Buchanan, A. E., 58, former manager Standard Oil Co. of Cuba, Cuba, February.

Burgess, Royal B., 84, Sarnia, Ontario, February.

C

Cameron, James, 61, financial agent East Texas Refining Co., Dallas, Tex., March 4.

Carnahan, B. H., Jr., California, January 14.

Case, Goldwyn M., 25, Imperial Oil Refining Co. staff man, Sarnia, Ontario, Canada.

Caster, Herbert O., 65, Cities Service Co., New York, April.

Clark, Joseph O., president, Royal Oil and Gas Corp., Indiana County, Pennsylvania, July 21.

Clarke, John Courtenay, deputy director of distribution department, Anglo-Iranian Oil Co., Ltd., London, England, September 28.

Coate, Philip S., 70, retired, formerly head of Chatham Gas Co., one of the founders and a director of Natural Gas and Petroleum Association of Canada, London, Ontario, Canada, December 30.

Cochran, Edwin Bliss, manager, Hamilton Production Co., also head of Indian Refining Co. crude oil department, Lawrenceville, Ill., October.

Coleman, Charles H., 63, Sinclair Prairie Pipe Line, Ramona, Okla., June.

Collier, William J., 64, associated with George W. Snedden, Jr., formerly director of drilling, British American Oil Producing Co., Tulsa, Okla., September 5.

Collins, Melvin J., chief geologist, Plymouth Oil Co., San Antonio, Tex., February 22.

Connochie, Henry, on refinery staff of Imperial Oil, Ltd., Sarnia, Ontario, October.

Considine, John A., 69, drilling contractor, Mineral Wells, Tex., August.

Conway, W. D., 50, oil operator, Ranger, Tex., January 19.

Copsey, Charles, 56, oil man, West Branch, Mich., September.

Cowell, T. R., director, Plymouth Oil Co., Baltimore, Md., February.

Crapper, William Francis, 76, oil operator, Petrolia field, Petrolia, Ontario, December.

Crawford, John Roe, 56, oil man, Shreveport, La., March 31.

Crosby, John W., 79, pioneer drilling contractor and producer, Leechburg, Pa., February.

Cruickshank, George F., 47, district superintendent, Southern Counties Gas Co., Santa Monica, Calif., February.

Cullen, Roy G., 30, secretary-treasurer, Quintava Petroleum Co., Houston, Tex., May.

Culver, George L., president, Culver Refining Co., Dallas, Tex., February.

D

Dana, A. G., 65, former president of Prairie Oil & Gas Co. of Wyoming, Tulsa, Okla., January.

Davis, John Karl, 75, oil operator Bartlesville, Okla., January 11.

Delack, Burton L., General Electric Co., Schnectady, N. Y., April.

Dingman, Archibald Wayne, 85, president, Highwood-Sarcee Oils, Ltd., Calgary, Canada, March.

Dittman, V. W., 77, Los Angeles, Calif., April.

Dodge, Harger Wells, 52, president, Wadhams Oil Co., Milwaukee, Wis., August 21.

Donnelly, William A., 38, Mid-Continent Petroleum Corp., Tulsa, Okla.

Dorn, Clayton G., treasurer, Forest Oil Corp., Bradford, Pa., June 9.

Doughty, Charles R., 51, light oil foreman, Louisiana Oil Refining Co., Shreveport, La., December 30.

Dove, Walter, 42, Imperial Oil, Ltd., Sarnia, Ontario, Canada, December 21.

Dowe, J. L., 48, chief accountant, United Gas Public Service Co., Houston, Tex., September.

Dunigan, John Edward, 76, drilling contractor and producer, Tulsa, Okla., March 8.

E

Edmonds, Walter J., 67, executive vice president, International General Electric Co., Scarsdale, N. Y., December.

Ellis, Dr. R. J., formerly head surgeon, International Petroleum Co. of Peru, New York, N. Y., October.

Ellis, Paul E., 55, drilling contractor, Pampa, Tex., June 3.

Evans, J. H., 86, pinoeer oil operator, president, Devonian Oil Co., Tulsa, Okla., October 3.

Evans, Ralph B., 53, chief counsel, Gulf Refining Co., Haverford, Pa., November.

F

Ferguson, Walter, 49, pioneer Oklahoma oil banker, Tulsa, Okla., March 8.

Fesenmyer, Frank, 83, oil producer, Bradford, Pa., July 28.

Fiero, Charles Irving, 74, retired, formerly vice president, Standard Oil Co. of Louisiana, Bronxville, N. Y., October 14.

Fitler, H. Biddle, 42, sales manager, Edwin H. Fitler Co., Philadelphia, Pa., January 22.

Fleeger, D. P., Wichita, Kans., March 27.

Follett, J. S., 86, Tulsa, Okla., March.

Ford, B. C., Frick-Reid Supply Corp., Pampa, Tex., May 9.

Francis, Lewis A., accountant, Sinclair-Prairie Oil Co., son of Dr. and Mrs. C. K. Francis, Mena, Ark., December 21.

G

Garber, Burton A., 64, pioneer oil man, Enid, Okla., June 4.

Gibson, Addison H., 75, president, Galvez Oil Corp., Tulsa, Okla., April 18.

Gormley, Ralph L., 46, salesman, American Cable Co., Topeka, Kans., December 7.

Graham, Frank P., former production superintendent, Skelly Oil Co., Emporia, Kans.

Granberry, Prentiss M., 80, Houston, Tex., September.

Graver, J. P., 68, formerly president, Graver Tank & Mfg. Co., Miami, Fla., November.

Gresham, James Van Bureau, Sr., 56, director, Standard Oil Co. of Louisiana, New Orleans, La., December 1.

Gribbel, John, 78, chairman of the board, American Meter Co., Camden, Maine, August 26.

Griffin, Charles F., 90, veteran refiner, Rouseville, Pa., February 25.

Groves, George F., 73, retired, formerly with Potter Gas Co., Bradford, Pa., November 2.

Gruver, John M., 80, oil operator, Butler, Pa., October.

H

Hale, Cloyd A., superintendent, Canadian Oil Companies, Ltd., refinery, Petrolia, Ontario, Canada, October.

Haley, Albert, 46, drilling contractor, Petrolia, Ontario, May.

Hall, Walter C., 57, S. R. Dresser Manufacturing Co., Allentown, Pa., April 30.

Halliburton, George James, Halliburton Oilwell Cementing Co., Calgary, Alberta, December.

Halstead, Griffin, 54, vice president, Galena Oil Co., Cincinnati, Ohio, September 1.

Hastings, William, Sr., 71, retired refinery superintendent, Houston, Tex., May 12.

Hayes, John R., 56, oil producer, Wichita, Kans., October 28.

Hazlett, John F., 68, oil producer, Bredinsburg, Pa., April.

Hazlett, Robert H., 89, banker-oil man, Eldorado, Kans., December 29.

Heath, Fletcher S., 72, vice president, Pure Oil Co., Oxford, Ohio, August 30.

Henaghan, James, 78, pioneer natural gasoline manufacturer, Wheeling, W. Va., April 6.

Henley, A. S., geologist, Glendale, Calif., September.

Herz, Gustav, 90, retired oil producer, Portland, Ore., May 31.

Hewitt, Arthur, 68, president-general manager, Consumers Gas Co., Toronto, Ontario, Canada, September.

Hiatt, Chester Curtis, 28, chief clerk, southern district, Sinclair-Prairie Oil Co., Ardmore, Okla., October.

Hickman, Harvey Quimby, district manager, McIntosh & Seymour Corp., Houston, Tex., November.

Hickman, O. L., 54, oil operator, Shreveport, La., November 18.

Hinkley, Carl C., executive engineer, Buda Engine Co., Detroit, Mich., August 23.

Hobbs, L. H., production superintendent, Pure Oil Co., Healdton, Okla., August 24.

Hobson, Calvin Jackson, 49, oil operator, Oklahoma City, Okla., June 3.

Hoch, Samuel, 53, one-time foreman, Pure Oil Co., November.

Horrigan, Mitchell A., marine department, Texas Co., New York, March.

Horsley, Max, geologist, Maxmont Oils, Ltd., Seattle, Wash., November.

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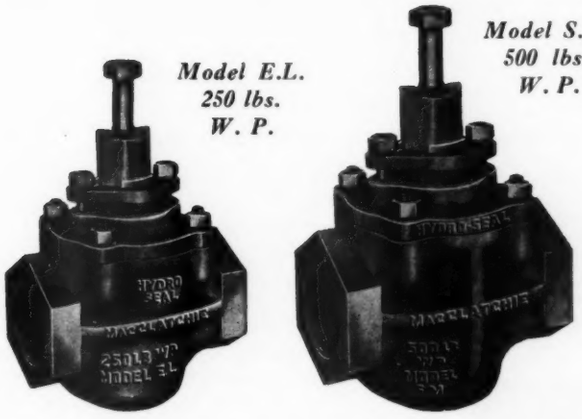

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- Overshot (Fig. C) for hard boxes and rods. And others for extra large couplings.

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O'BANNON SUCKER ROD SOCKETS

Houser, George W., 66, director, Planet Oil Corp., Los Angeles, Calif., August.

Hughes, James E., retired, formerly president, Mahutska Oil Co., Pittsburgh, Pa., December.

Hunter, Ira Walker, 80, retired, formerly with Southern Pennsylvania Oil Co., Tulsa, Okla., December 13.

J

James, Frederick W., prominent in natural gasoline business, Chatham, Ontario, May.

James, W. O. 51, retired, formerly division superintendent, Gulf Refining Co. pipe line department, Dublin, Ind., August 21.

Jamison, Arthur Campbell, 56, production superintendent, Arkansas Fuel Oil Co., Shreveport, La., May 21.

Jay, Isaac E., 71, civil engineer-oil man, Tulsa, Okla., August 21.

Johnson, D. J., 66, oil operator, Longview, Tex., October 13.

Johnston, Lester E., 66, retired production superintendent, British-Lobitos Oilfields, Ltd., Los Angeles, Calif., February 22.

Jones, James R., attorney, Argo Oil Co., Denver, Colo., August.

K

Kellogg, Frederick R., 68, co-founder of Richfield Oil Co., Sierra Madre, Calif., May.

Kendrick, Clark, 58, independent oil producer, Tulsa, Okla., January 20.

Kennedy, James, 67, general manager, marine department, Gulf Refining Co., Flushing, Long Island, N. Y., January 19.

Keown, Robert Joseph, 66, retired vice president and treasurer, Union Oil Co. of California, Pasadena, Calif., April.

Kerr, William Argyle, 39, maintenance foreman in production department, Royalite Oil Co., Turner Valley, Alberta, Canada.

Kervin, Daniel, oil producer-drilling contractor, Bradford, Pa., December 16.

Keys, Wilson, consulting geologist, San Angelo, Tex., June.

Kilgore, Edwin R., 26, tank farm superintendent, Standard Oil Co. of California, Richmond, Calif., August.

King, Willis Larimer, 85, "Dean of the Steel Industry," executive of Jones and Laughlin Steel Corp., Pittsburgh, Pa., December 11.

Kingery, Floyd A., 44, district manager, Oil Well Supply Co., Wichita Falls, Tex., November 23.

Kinkel, John F., 37, Kansas district geologist, Phillips Petroleum Co., Wichita, Kans., December.

Kirschner, M. J., 87, retired, Monrovia, Calif., May.

Kishi, H., oil operator, Liberty, Tex., July 20.

Kline, David U., 79, oil producer, Blairs Corners, Pa., December 5.

Kobel, W. C., 53, erecting engineer for Cooper-Bessemer Corp., Tulsa, Okla., April.

Knoch, Dr. Franklin E., pioneer oil man, Florence, Colo., June 7.

L

Lamb, J. A., 73, oil operator, Ardmore, Okla., December 18.

Lambert, Roy N., 50, vice president, Western Oil & Fuel Co., Albuquerque, N. Mex., October 2.

Lanier, A. F., 48, president, Sultana Drilling Co., Shreveport, La., April 25.

Lassiter, H. N., representative, Drane Tank Co., Pampa, Tex., June 19.

Law, Morell, Los Angeles, Calif., February 15.

Lawrence, Frank, 54, oil producer, Eldred, Pa., August 27.

LeClarre, Charles J., 55, Magnolia Petroleum Co., Electra, Tex.

Lee, William Ellsworth, 69, oil operator, Houston, Tex., October 28.

Lockard, Charles Archbold, 72, independent oil operator, Queens, Long Island, N. Y., August 6.

Leonard, Joe, 48, scout, Tide Water Oil Co., Midland, Tex., August 23.

Luse, Melvin E., chief engineer, Standard Pipe Line Co. of Louisiana, Shreveport, La., August.

Mc

McCall, Edward, 79, Petrolia, Ontario, March.

McCabe, James V., oil operator, Russell, Kans., August.

McCargo, Grant, 72, one-time president, Standard Oil Co. of Pennsylvania, Pittsburgh, Pa., November.

McCarty, Daniel F., 66, executive secretary, National Rig Builders of America, Tulsa, Okla., December 27.

McCormick, Cyrus H., retired chairman of the board, International Harvester Co., Lake Forest, Ill., June 2.

McCray, James Hiram, 94, oil operator, Nowata, Okla., August 16.

McElroy, John T., 84, rancher-oil man, El Paso, Tex., October 14.

McEwan, Andrew J., 46, formerly manufacturer of oil field equipment, St. Louis, Mo., August.

McEwen, William J., 69, retired oil man, Toronto, Canada, March.

McGinley, William, president, McGinley Oil Corp., Fort Worth, Tex., March.

McGinty, Charles F., 57, Houston, Tex., March.

McManus, John, 65, retired, Parkersburg, W. Va., January 6.

McNutt, Vachel Harry, 50, geologist, San Antonio, Tex., April 5.

M

MacMillan, Edward S., field representative, British-American Oil Producing Co., Calgary, Alberta, September.

Mallory, Sidney T., 75, oil pioneer, Tulsa, Okla., June 18.

Manbeck, Charles B., refinery manager, Standard Oil Co. of Indiana, Alton, Ill., August 2.

Martin, H. S., 59, oil operator, Fort Worth, Tex., October.

Martin, W. B. 39, assistant to vice president in charge of Texas Co., Los Angeles, Calif., February.

Massie, Dr. J. H., oil operator, Los Angeles, Calif., September.

Massey, Harold, 47, president, Massey Oil & Gas Co., Windsor, Ontario, February 9.

Massey, James, oil man, widely known in United States and Canada, Negritos, Peru, October 29.

Maw, Henry Charles, 56, staff employe, Canadia Oil Refineries, Ltd., Petrolia, Ontario, Canada.

Mercer, John, 32, chief engineer, refining division, Louisiana Oil Refining Corp., Shreveport, La., August.

Middleton, John E., 53, Imperial Oil, Ltd., Sarnia, Ontario, April.

Miller, John Black, 69, oil man, Pittsburgh, Pa., June 22.

Miller, William Bradley, 65, oil producer, Bradford, Pa., November 26.

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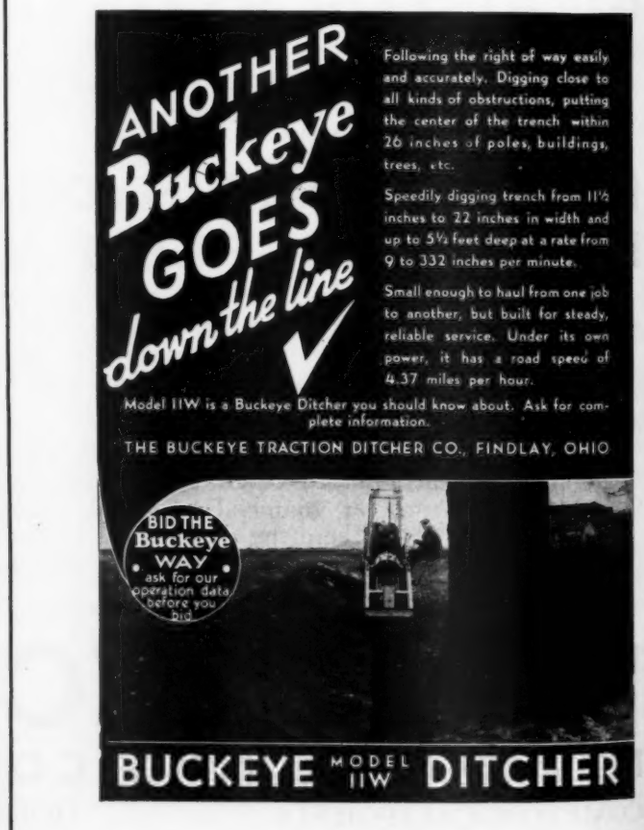
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Millican, Charles Edward, 38, Humble Oil & Refining Co., Wichita Falls, Tex., May 13.

Mittnacht, A. E., secretary-treasurer, Ethyl Gasoline Corp., New York, April.

Moffett, J. McC., 64, vice president in charge of sales, Midwest Piping & Supply Co., September 5.

Mohler, Ralph I., 46, Sinclair Prairie Pipe Line Co., Tulsa, Okla., April 27.

Moncrief, Kenneth, 24, petroleum engineer, Beaumont, Tex., June.

Morefield, L. W., 39, Tulsa, Okla., February 6.

Mowris, William S., 68, chairman of the board of Venezuela Oil Corp., New York City, February 12.

Mullin, John E., producer, Kane, Pa., January 4.

Murphy, J. F., 70, drilling contractor, Sapulpa, Okla., June.

Murray, Robert S., 68, formerly treasurer, General Electric Co., Schenectady, N. Y., July 29.

Myers, George W., 54, oil operator, Calgary, Ontario, April.

Myracle, Hobart M., secretary-treasurer, American Iron & Machine Works Co., Oklahoma City, Okla., October 16.

N

Neal, A. W., 61, oil man, Bartlesville, Okla., April.

Nix, Roy, 42, construction foreman, Frick-Reid Supply Corp., Wichita Falls, Tex., November.

Nolan, Charles, oil producer, Bradford, Pa., January 7.

O

Ogletree, Hope H., 60, employe, Magnolia Petroleum Co., Beaumont, Tex., October.

O'Neil, John, 63, pioneer oil man, Wichita Falls, Tex., May 18.

Orr, Joseph W., 74, formerly managing editor, Oil City Derrick, Oil City, Pa., September.

P

Parks, Prof. W. A., 68, head of geology department, University of Toronto, October.

Patrick, John H., 55, oil man, Okemah, Okla., April.

Peat, James, 94, oil operator and drilling contractor, Petrolia, Ontario, March.

Penote, Augustus J., 55, president, A. J. Penote Contracting Co., Cleveland, Ohio, May 9.

Peterson, George Henry, oil operator, Tampico, Mexico, March.

Pinkham, A. M., secretary-treasurer, McDougall-Segur Exploration Co., Calgary, Alberta, Canada.

Phillips, G. C., 43, scout for California Oil Co., San Angelo, Tex., January 21.

Phillips, J. J., Sr., oil man, Wichita Falls, Tex., March.

Plumly, E. E., 64, vice president, Magnolia Petroleum Co., Beaumont, Tex., February 7.

Poole, Fred, scout, Darby Petroleum Corp., Great Bend, Kans., December.

R

Radigan, Bruce, 47, former deputy oil and gas inspector in Montana, Shelby, Mont., December.

Rees, J. A., 68, employe, Indian Territory Illuminating Oil Co., Burlington, Kans., November.

Rees, J. Fred, 57, agent, Union Gas System, Inc., Independence, Kans., December 31.

Reeser, Joseph Warren, 66, superintendent of distribution, United Fuel Gas Co., Huntington, W. Va., May 18.

Revais, Holland S., 60, founder and publisher, The Oil Investors Journal, Mt. Saint Angelo, Va., October 27.

Reynolds, C. B., Hagerstown, Ind., February.

Ricketts, Ike, production superintendent, Amerada Petroleum Corp., Houston, Tex., November.

Riggs, Dr. E. R., 62, oil operator, Graham, Tex., April 19.

Roebling, Ferdinand W., Jr., president, John A. Roebling's & Sons Co., May 29.

Roland, R. G., 48, Ardmore, Okla., February 14.

Roundtree, Millard T., 34, production superintendent, Olney, Tex., April.

Rouse, Earl H., representative, Edwin H. Fitler Rope Co., New Martinsville, W. Va., October.

Rule, William James, Jr., managing distributor of sales, Richfield Oil Corp., New York, April 2.

S

Savage, Fred R., president, 56 Petroleum Corp., and Bank of Miles City, Miles City, Mont., December.

Schlumberger, Conrad, 58, Stockholm, Sweden, May 9.

Schooley, B. L., 72, former refiner, Brisbane, Australia, January.

Settle, George E., 74, retired district manager, Standard Oil Co., September.

Seymoure, Roy A., employe, Arrow Drilling Co., Seminole, Okla., October.

Sharpe, Robert J., 62, manager, General American Tank Car Corp., Palmer Lake, Colo., July 27.

Sheldon, Herbert R., 73, retired officer, United Natural Gas Co., Oil City, Pa.

Silent, Roy, 46, chief engineer, Petroleum Securities Co., also member of A. S. M. E., Los Angeles, Calif., November.

Skeen, Dawson H., president, D. H. Skeen & Co., Flossmoor, Ill., February 23.

Skinner, Edward B., 78, oil producer, Tulsa, Okla., December 7.

Smith, Gene R., 35, geologist, Houston, Tex., June 14.

Sparrowhawk, R. W., 50, superintendent, Oklahoma Pipe Line Co., Chicago, Ill., January 8.

Spears, Andrew J., oil man, Jenks, Okla., April.

Spooner, Hiram R., geologist, Calgary, Canada, May.

Stephenson, J. Alex, 90, drilling contractor, Depew, Okla., April.

Stewart, Dr. W. F., producer, New Martinsville, W. Va., January.

Stewart, Samuel W., 73, retired, formerly superintendent, Tide Water Oil Co., Robinson, Ill., November.

Strickland, C.D., 73, driller, Dewey, Okla., March 8.

Stimson, Paul, associate, of R. A. Stimson Oil Co., Taft, Calif., August.

Stroup, James Garfield, 55, driller, Pampa, Tex., October.

Stroup, John, 69, foreman Southern Ontario Gas Co., Ontario, Canada, April.

Sutherland, J. W., 70, Oil Springs, Ontario, January.

Swartz, W. H. (Shooter Bill), 63, oil well shooter, Clearfield, Pa., August 21.

T

Thomas, E. Renshaw, oil operator, Alice, Tex., November.

Thompson, Albert M., 26, refinery worker, Coutts, Alberta, August.

Thompson, Joseph D. (Peg), 63, driller, Rangoon, Burma.

Tinsley, Richard P., 69, former executive of Socony-Vacuum Oil Co., New York, November 23.

Townsend, B. D., pioneer oil operator, Denver, Colo., May 28.

Tubre, Charles P., 67, retired oil operator, Baton Rouge, La., December.

Tucker, S. Lewis, Jr., 38, controller, of American Meter Co., New Rochelle, N. Y., December 18.

V

Vogt, Henry, 81, president and founder of Henry Vogt Machine Co., Louisville, Ky., December 27.

W

Wallen, Edwin Kerby, 40, driller, Bucharest, Rumania.

Weaver, A. M., 61, cable tool contractor, Tulsa, Okla., June.

Weekley, James J., chief auditor, Wirt Franklin Petroleum Corp., Ardmore, Okla., December.

Weidlein, Luther Burdick, 55, sales manager, Arthur G. McKee & Co., North Kingsville, Ohio, July 20.

Welder, Jay, rancher-oil man, Victoria, Tex., November.

Welsford, Gerald C., 43, general supervisor, marketing branches, Imperial Oil, Ltd., Toronto, Ontario, Canada, September 2.

Whiteside, Robert M., 41, geologist, Dallas, Tex., November 18.

Whittenburg, J. A., 79, rancher-oil man, Amarillo, Tex., October.

Willisma, George Daiber, 43, executive vice president, V. P. Hancock Oil Co. of California, Long Beach, Calif., April.

Williams, William A., 58, manager, of gas operations, United Carbon Co., Huntington, W. Va.

Wilson, Walter, 38, traffic manager, Cosden Oil Corp., Fort Worth, Tex., January 27.

Wilson, Warren E., 72, formerly district superintendent, South Penn Oil Co., Tulsa, Okla., November.

Windsor, Col. Fred., oil operator, Warren, Pa., February 19.

Wolcott, O. P., 32, manager of purchasing and traffic departments, Wyatt Metal & Boiler Works, Dallas, Tex., November 13.

Woolery, K. S., retired, Dallas, Tex., January 7.

Y

Yancy, James C., 63, oil operator and geologist, Fort Worth, Tex., May 30.

Young, Robert W., 63, employe, Imperial Oil, Ltd., Refinery, Sarnia, Onperial Oil, Ltd., refinery, Sarnia, Ontario, October 20.

World Crude Production

(Continued from Page 152)

duced another increase in crude recovery for 1936. The country's ranking above British India (Burma) as the largest producing colony of the British empire remains secure and was even accented during the year. Production of 13,400,000 bbls. was an increase of 1,729,000 over 1935, or approximately 14.8 per cent.

Germany's production increase of 11.8 per cent over 1935 to a total of 3,300,000 bbls. was the result of intensive drilling in proven areas, but the nation is still far short of producing its petroleum requirements. Tariffs of various natures thrown up to protect Germany's expensive crude production and its equally expensive synthetic manufacture of motor fuel lends considerable inducement to internal exploration, although results so far have been discouraging.

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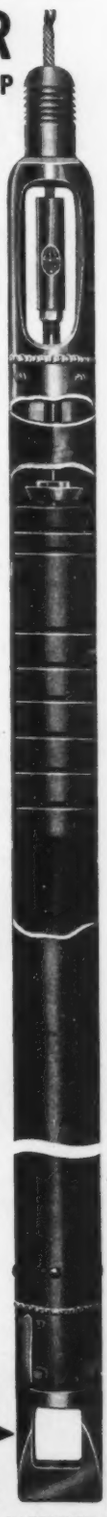

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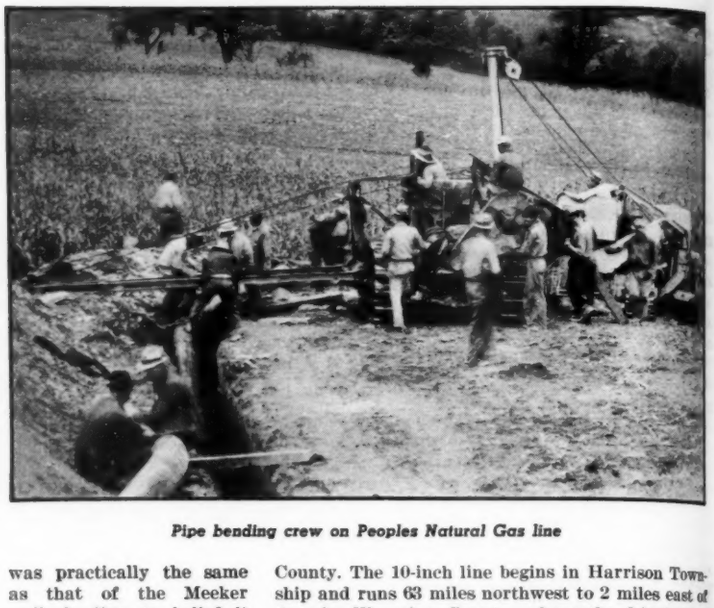


Pipe bending crew on Peoples Natural Gas line

By J. P. O'DONNELL

OIL CITY, Pa.—Despite the fact that 65 wells, 18 of which were entirely barren, with a total initial open flow of 730,000,000 feet per day were completed in the deep sand gas fields of northern Pennsylvania and southern New York during 1936 important developments from the standpoint of new production were negligible. Considerable wildcatting was done but resulted entirely in dry holes or wells with insufficient production to make them profitable.

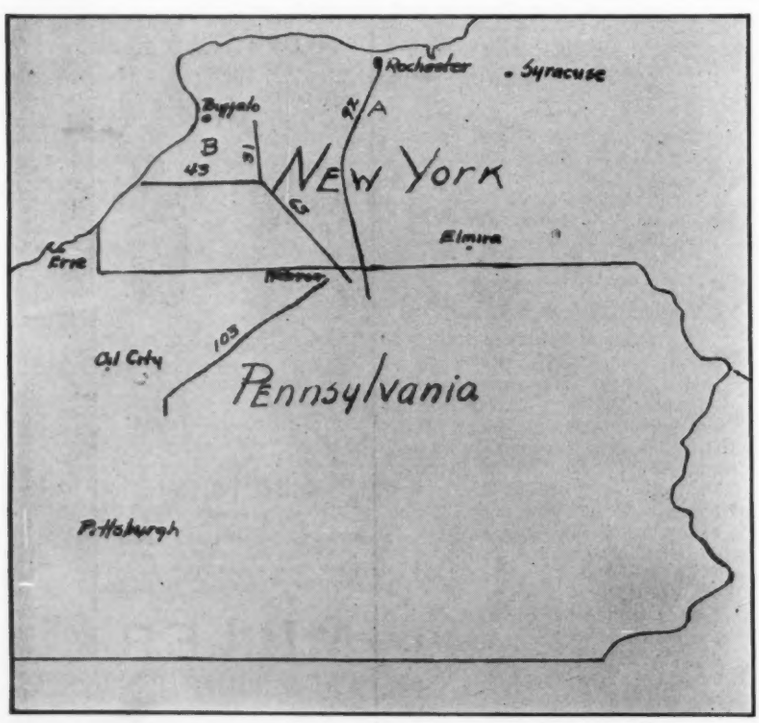
Probably the most interesting test was drilled on the William Pettigrew farm in Farmington Township, Tioga County, Pennsylvania. It was completed early in July at 4,307 feet, 2 feet in the sand, and gauged 22,000,000 feet per day. It is south of the discovery well in the Tioga field and about 3½ miles west of the Meeker well which gauged 100,000,000 feet, the record in the field. Its rock pressure when shut in after completion was practically the same as that of the Meeker well, leading to belief it is a westward extension of the pool.

Additional markets for gas were opened in 1936 with the completion of three large pipe lines, the extension of a fourth and proposals reported under consideration for one other. Some 335 miles of pipe lines extending into northern and western New York and into southwestern Pennsylvania were constructed at a cost of more than $4,000,000. They will be capable of taking more than 60,000,000 feet per day.

Longest single line is that of Peoples Natural Gas Co. extending 103 miles from its northern terminus in Hebron County via Pew station to Red Bank Township, Clarion County, where it connects with a line carrying gas to the city of Pittsburgh. This 12-inch line with a daily capacity of 28,000,000 feet, connects with the southern terminus of the New York State Natural Gas Co. line to Syracuse completed from the Tioga field in 1932 and extended to the Hebron, Potter County, Pennsylvania, field in 1933. The two form a line over 300 miles in length. The Peoples' line was put into operation December 21. The largest natural gas line construction job in western Pennsylvania in years, it was built to provide reserve supplies for future increased demands in Pittsburgh, according to J. French Robinson, president of the company.

Penn York Gas Co., subsidiary of Cities Service Co., built 134 miles of 8- and 10-inch line to service communities along Lake Erie and east of Buffalo now served by subsidiaries of Cities Service. The gas is produced from the Harrison Township field in northeastern Potter County. The 10-inch line begins in Harrison Township and runs 63 miles northwest to 2 miles east of Arcade, Wyoming County, where the 8-inch lines begin. One of the smaller lines connects with Sheridan, Chautauqua County, 43 miles west of the terminus of the 10-inch line. The other small line runs north 31 miles to near East Lancaster in Erie County.

Cabot Gas Corp. of Olean, N. Y., began construction of a 92-mile 14-inch line from the Sabinsville field in Tioga County, Pennsylvania, to Rochester, N. Y., where it will supply the Eastman Kodak Co. with natural gas on a three-year contract. The company is also permitted to supply natural gas to communities along the route. It will supply the Pavilion, N. Y., Gas Co., south of Rochester, which serves 5,000 customers.



A—Cabot Gas Corp. line, Tioga County, Pennsylvania, to Rochester, N. Y. B—Penn York Gas Co. line, Potter County, Pennsylvania, to Lake Erie communities. Peoples Natural Gas Co. line, Hebron field to Clarion County, where it connects with line to Pittsburgh, Pa.

AUGMENTED FACILITIES

Construction of this line was begun in mid-October after the New York Public Service Commission acceded to the company's petition. The petition was vigorously opposed by seven railroads, the line running under 15 railroad right of ways, and by several large coal companies and a gas and electric company.

Sylvania Corp. extended its line from the Ellisburg field to the Harrison field, approximately 12 miles.

These lines augment pipe line facilities placed in operation since discovery of the prolific gas reservoir, known as the Dundee field, in Wayne Township, Schuyler County, New York, in 1930. They include the 150-mile line of the New York State Natural Gas Co. completed to Syracuse, N. Y., from the Tioga field in 1932 and extended to the Hebron field in 1933. This 20-inch line also supplies Ithaca and Cortland, N. Y. Williamsport, Pa., and neighboring communities are supplied by a 14-inch line completed in 1931 by Pennsylvania Power & Light Co. from the Tioga field and later extended to the Sabinsville field. The first line laid following discovery of the Dundee pool connected that field with Columbia Gas & Electric Corp.'s east-west line at Horseheads, Chemung County, New York. This line supplies Binghamton, N. Y., as well as other communities.

The State Line field in Willing and Alma Townships, Allegany County, New York, led in development work last year. Thirteen producers with a total initial open flow of 311,000,000 feet per day were completed in this field discovered in 1934. Last year nine producers with a total initial open flow of 215,000,000 feet were drilled in the State Line field.

The Sabinsville field in Clymer and Westfield Townships, Tioga County, Pennsylvania, discovered in 1935, ranked second in development. Ten wells with a total initial open flow of 172,400,000 feet were completed. The best well for all fields in the New York-Pennsylvania area for the year was completed on the G. Stebbins property, Clymer Township, on the outskirts of Sabinsville, which

gives this field its name. The well gauged 50,000,000 feet per day.

Four wells were drilled in the Harrison field of Harrison Township, Potter County, Pennsylvania, resulting in a total initial open flow of 46,200,000 feet per day.

OTHER OPERATIONS

Included in the remaining 47,350,000 feet open flow not represented in these fields were the Pettigrew farm well in Tioga County; the Kinzua Township, Warren County, Pennsylvania, wildcat which gauged 1,700,000 feet after shot but later developed salt water; a 16,750,000-foot well in Greenwood, southwestern Steuben County, later abandoned on account of salt water without putting any gas into the line, and 6,600,000 feet developed in the White Medina sand field of Leon and Portland Townships in Cattaraugus County.

N. Y.-PA. GAS FIELD COMPLETIONS IN 1936

PENNSYLVANIA

Potter County

Township, field.* farm—	T.S.	T.D.	Production
Ulysses, W., A. G. Lyman	No sand	6,280	D.&A.
Allegany, E., G. Burd	5,340	5,344	17,000,000
Genesee, E., Duke Est.	5,370	5,376	S.W.
Genesee, E., W. Burrell	5,166	5,172	20,275,000
Genesee, E., W. Burrell	5,119	5,128	17,000,000
Genesee, E., D. Rapan	5,217	5,229	21,500,000
Bingham, E., F. D. Whitney	5,104	5,115	4,200,000
Harrison, H., R. McCutcheon	4,998	5,026	3,100,000
Genesee, E., T. Cobb Est.	5,280	5,301	14,500,000
Genesee, E., G. Thompson	5,014	5,024	21,000,000
Harrison, H., N. Courtwright	5,119	5,133	20,000,000
Harrison, H., L. Barnes	5,044	5,052	22,500,000
Genesee, E., Costello-Thompson	5,008	5,014	12,700,000
Harrison, H., F. Plaisted	4,965	4,906	600,000

Tioga County

Clymer, S., J. Trimmer	4,535	4,549	10,500,000
Westfield, S., H. Decker	4,590	4,604	13,700,000
Clymer, S., F. Johnson	4,348	4,368	12,000,000
Clymer, S., A. Karhan	4,209	4,213	21,500,000
Clymer, S., G. Stebbins	4,160	4,162	50,000,000
Clymer, S., O. Burnside	4,370	4,378	17,000,000
Clymer, S., J. Latimer	4,184	4,207	5,500,000
Clymer, S., H. Gee	4,168	4,178	9,000,000
Farmington, T., W. M. Pettigrew	4,305	4,307	22,000,000
Clymer, S., E. Williamson	4,153	4,159	10,200,000
Clymer S., O. Owens	4,182	4,194	23,000,000
Lawrence, W., J. Tremaine	3,605	3,690	D.&A.

Warren County

Kinzua, W., Lessor-Launer	4,673	4,689	1,700,000
Kinzua, W., W. Honhart	4,660	4,662	S.W.

Crawford County

S. Shenango, W., G. Scott	4,415	4,465	D.&A.

NEW YORK

Allegany County

Alma, S.L., C. D. Regan	4,520	4,523	30,000,000
Alma, S.L., Downs Estate	4,643	4,651	34,000,000
Willing, S.L., P. O'Donnell	4,929	4,931	11,500,000
Allen, W., H. Behrens	3,204	3,285	D.&A.
Angelica, W., Snyder	4,061	4,104	250,000
Alma, S.L., H. Knox	4,399	4,410	30,000,000
Amity, W., Gillette	4,213	4,278	D.&A.
Willing, S.L., H. Knox	4,607	4,623	20,000,000
Alma, S.L., W. Burns 2	4,932	4,941	20,500,000
Alma, S.L., T. Burns	4,781	4,796	20,000,000
Willing, S.L., J. O'Hara	4,960	4,969	S.W.
Willing, S.L., J. O'Hara	4,690	4,695	S.W.
Amity, W., R. Cline	3,617	3,675	6,000
Willing, S.L., F. Markey	4,554	4,562	30,000,000
Amity, W., F. Carpenter	3,879	3,956	S.W.
W. Almond, W., Engalls	3,626	3,800	D.&A.
Willing, S.L., Van Campen	4,803	4,818	7,500,000
Alma, S.L., Murphy heirs	4,643	4,649	30,000,000
Alma, S.L., T. Burns	4,616	4,626	30,000,000
Alma, S.L., D. J. Crane	4,588	4,599	27,000,000
Alma S.L., L. Harder	4,840	4,853	21,000,000

Steuben County

Greenwood, G., W. Ackley	4,453	4,456	16,750,000
Dansville, W., G. Losey	....	4,375	Abd., cvg.
Avoca, W., C. Matton	No sand	3,186	D.&A.
Howard, W., C. Willis	3,375	3,393	30,000
Hornellsville, W., Amidon	4,080	4,112	S.W.

Cattaraugus County

Leon, L., P. Curtis	3,541	3,558	2,500,000
Portland, L., E. Wright	3,570	3,585	3,200,000
Leon, L., B. Franklin	3,703	3,718	900,000
Leon, L., March	3,597	3,620	50,000

Schuyler County

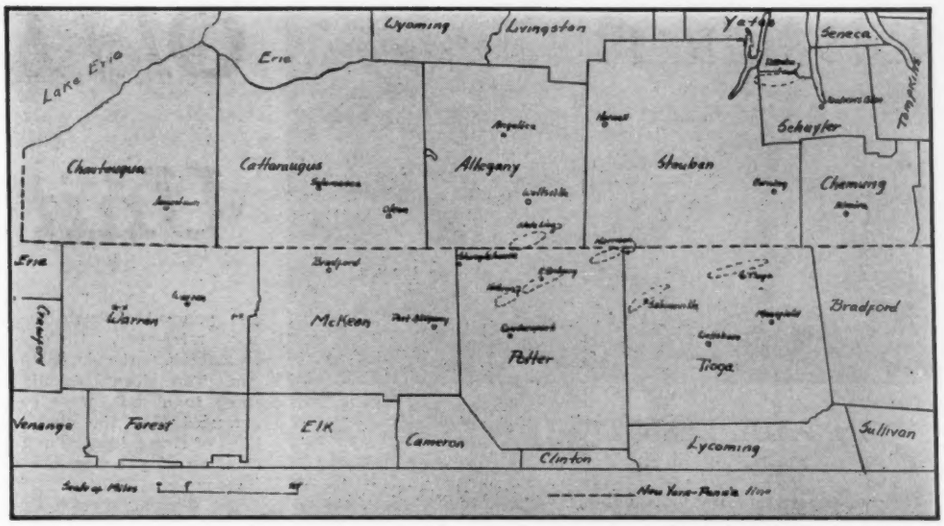
Hector, W., E. Shearer	2,286	2,300	D.&A.
Hector, W., W. Gardiner	No sand	2,187	D.&A.
Hector, W., E. Berry	No sand	2,487	D.&A.

Chautauqua County

Charlotte, W., Estee	3,969	4,025	D.&A.
Hanover, W., E. Smith	2,078	2,120	14,000

*E., Ellisburg; H., Harrison; S., Sabinsville; T., Tioga; S.L., State Line; G., Greenwood; L., Leon; W., wildcat well.

Production was developed for the first time in Angelica Township, Allegany County, New York, when a well drilled to 4,104 feet on the Snyder farm in January gauged 250,000 feet. The small size of this well argued against extensive development of this area. Another test is drilling on the Terwilliger farm.



Gas fields and tests in New York-Pennsylvania area. 1-X Kinzua Twp. well. 2-X Pittsfield Twp. well

Probably the greatest excitement resulted from the completion of the Lessor & Launer farm well in Kinzua Township, Warren County, Pennsylvania, which gauged 1,700,000 feet per day after a shot. Completion of this test, approximately 45 miles west of Oriskany production, led to extensive leasing in Kinzua Township and three other wells were spudded in. One, completed in late November, found salt water in the Oriskany. The Lessor & Launer farm well also developed salt water and its gas flow dwindled to where it will probably be plugged.

Three wells were drilled in Hector Township, Schuyler County, New York, in hope of discovering an extension to the Dundee pool but all were dry. Two of them failed to find the Oriskany.

The A. G. Lyman farm well in Ulysses Township, Potter County, a considerable distance south of production, likewise failed to find the sand. It was completed at a total depth of 6,280 feet, 1,000 feet deeper than the average Potter County Oriskany sand gas wells.

UNSUCCESSFUL WILDCATS

Other unsuccessful wildcats included the Duke Estate farm well in Genesee Township, Potter County, which found salt water in the Oriskany at 5,376 feet; the G. Scott farm well in South Shenango Township, Crawford County, far removed from production, dry after passing through the Medina at 4,415-31 feet; three tests in Amity Township, Allegany County, New York, two of which were dry and the third gauged only 6,000 feet; a well in Hornellsville Township, Steuben County, New York, which found salt water at 4,112 feet, 4 feet in the sand; two Chautauqua County wells and three others in Steuben County.

Among the wildcats drilling were the Crawford Estate farm well in Keating Township, Potter County, and the D. Spetz farm well in Pittsfield Township, Warren County. The Keating Summit well is below the Oriskany horizon without finding the sand and will be drilled deeper. The Pittsfield well also failed to find the Oriskany and is drilling to the White Medina. Another interesting wildcat is drilling in Venango County, Pennsylvania, the first attempt to learn Oriskany sand possibilities in that section. This well is on the Stellman farm in Rockland Township.

With additional facilities to market gas provided during 1936 operators in the New York-Pennsylvania fields are anticipating a substantial wildcatting campaign in 1937 as new fields become economically justified. Prolific gas reserves have been developed in the Oriskany sand in northern Pennsylvania and in West Virginia, particularly in Kanawha County, and it is likely the intervening structure, which has been tested with little success except in the neighboring counties of Beaver, Pa., and Columbiana, Ohio, will be given a much more thorough examination during this year.

State Drilling Bill

LOS ANGELES, Calif.—A bill said to be supported by Governor Merriam has been introduced in the legislature to permit drilling on state-owned pools off Huntington Beach.

The proposed drilling would be confined in an area of about 15 square miles in Orange County and does not authorize general tideland drilling. The state may do the drilling itself or may let it to private parties after competitive bids. The state may lease, purchase or acquire by condemnation lands for drilling sites. Private leases would be for an initial 10-year period, subject to five-year extensions.

Provisions in the lease must be made to prevent pollution of beaches, requiring that "reasonable precautions shall be taken to minimize interference with the uses thereof for public bathing, fishing or other recreational purposes."

Tax Cut Increases Revenue

NEW YORK.—Despite a 1-cent-per-gallon reduction in the New York state gasoline tax rate last July, increased consumption is netting a greater current revenue than in the past. November gasoline tax receipts at Albany were $4,829,071, compared to $4,442,295 for November, 1935. Final figures for October show that New York consumed 161,140,938 gallons compared to 149,751,306 gallons in October, 1935.

Wild Well Survey

AUSTIN, Tex.—The Railroad Commission has requested oil and gas operators to furnish information on wild wells and fires of the past seven years.

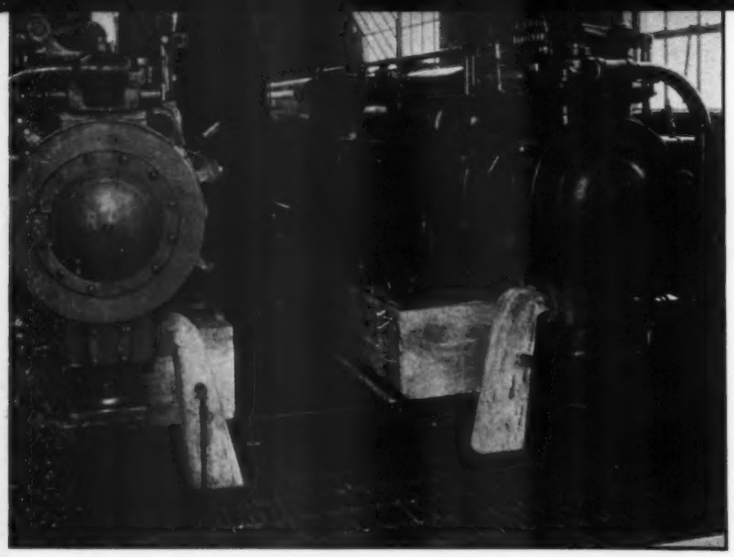
"This will assist us," a statement said, "to approach more intelligently the problem of making orders, rules and regulations concerning hazards."

Complete information on how wild wells got out of control, whether they cratered, caught on fire, how they were extinguished, brought under control, loss of property or life, if fires were due to pipe line breaks, casinghead gas, lightning, burning debris, lighted burners or electrical appliances and other information was requested.

V. E. Cottingham, director of production, will assemble the information.

Louis McNally Retires

Completing 44 years of service with Wadhams Oil Co., Louis McNally, vice president and director, has retired under the Socony-Vacuum annuity plan. For many years he had been director of purchases.



Old Dutch Vapor
Unit Is Featured

By PAUL ELLIOTT

Large unit for compressing cycle gas used in the process for handling Michigan and Mid-Continent crudes

One of the outstanding refinery developments in Michigan during 1936 was the installation by the Old Dutch Refining Co. at Muskegon, Mich., of a 1,500- to 2,500-bbl. true vapor-phase cracking unit designed under T.V.P. patents of the Petroleum Conversion Corp. Embodying a combination of cracking on the vapor phase and polymerization, the Muskegon unit, installed at a cost of about $200,000, represents a distinct refinement of former units developed and installed by the same corporation at the Texas City, Tex., and Wood River, Ill., plants of the Shell Petroleum Corp.

Building of the T.V.P. unit at Muskegon marked the realization of a new design to meet modern conditions requiring economy of installation costs, efficiency of operation, compactness and a minimum operating staff. These advantages, it is claimed by the designing engineers and officials of Old Dutch, have been accomplished to a marked degree.

While detailed statistics of operation are not yet available, some general observations which may be of interest to the industry can be made at this time.

Construction of the new unit was started in the spring of 1936 and completed August 31 ready for first tests within about five months.

SUPERHEATED GAS USED

The thought of cracking in the vapor phase is the corollary of high temperatures. This is notably true at Muskegon where the crude is vaporized, the vapors superheated and the superheated vapors then blended with a gas which has been heated to a temperature of about 1,200° F. The resulting mixture of vapors and gas, having a temperature of about 1,020 degrees, then enters the reaction chamber where the heavy oil-molecules are decomposed and reformed to make a low-gravity viscous fuel oil, a motor fuel high in per cent of aromatic and unsaturated hydrocarbons, and a fixed gas.

One of the chief purposes of the Old Dutch company in making this added investment was to produce a high-octane motor fuel satisfactory to meet present-day demands as premium gasoline. It is claimed the purpose has been achieved.

Several years ago a similar type of cracking unit was built at Wood River, but due to the lack of alloy steels capable of withstanding the intense temperatures for continuous operation the design was unwieldy and the capital investment unduly large. In order to heat the gas to be blended with superheated vapors to a sufficiently high temperature so the blend would be within the cracking temperature range, it was necessary to build huge stoves similar in design to the modern blast furnace. These stoves were filled with refractory materials which were heated to a high temperature. The fires then were cut and the blending gas pumped through the hot refractory, thereby transferring the heat to gas. The stoves, usually three to a unit, were so arranged that the operations of firing, heating and blending of gas were continuous.

The thought of such an operation in the light of modern cracking is incompatable. Now, with the development of alloy steels capable of withstanding the necessary high temperatures, the problems of developing the immense possibilities of this type of unit have become comparatively simple and conservative in initial cost as well as in operation.

ALLOY STEELS FOR HEATER

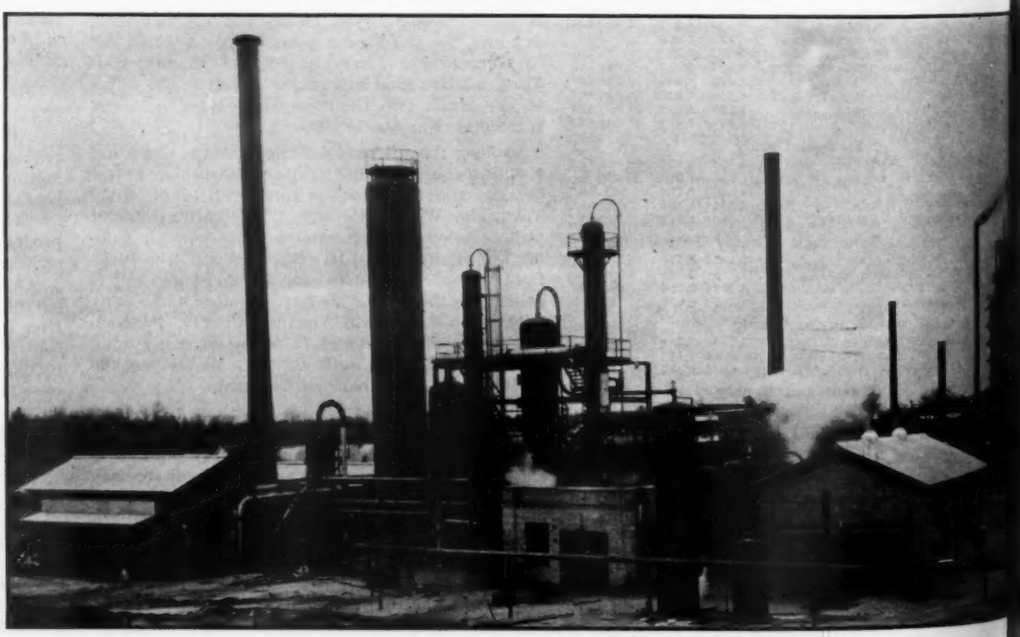
At Muskegon the blending gas is heated to its required temperatures in one side of a double, end-fired tubular heater. The oil vapors are given a superheat in the other side of the same heater. In this manner the costly, awkward stoves are replaced by a tubular heater which handles the process admirably and is easily controlled. The tubes in both sides of this heater are made of alloy steels of varying compositions necessary to withstand the severe service under which they are fired. After nearly five months in service, with intermittent adjustments for thorough testing as the first installation in this size plant, the tubes are said to be in excellent shape.

Inherent in the principle of true vapor-phase cracking is the blending of the hot gas with the oil vapors. This blend is then carried from the heater to a reaction chamber in which there is no liquid and where the cracking reaction is completed in conventional manner. Here again modern materials play an important part in the designer's problems. Because of the time necessary for cracking the reaction chamber must be comparatively large. Even considering present developments in the steel industry it was found impractical to build this vessel of alloy steels necessary to withstand the reaction temperatures. So this problem was solved by insulating the inside of the reaction chamber.

This was accomplished by welding studbolts to the shell of the vessel in rows about 36 inches apart with the bolts about 12 inches apart. Then two layers of high-temperature insulating blocks were bolted to the shell. Over the block there was placed a wire netting and about 1 inch of plastic cement, heated to such a temperature that it vitrified. This in turn, after about five months' operation, has been covered with a layer of very dense lamp black about half an inch thick, which also aids in insulating the shell from the high temperatures of the vapors. By means of this insulation, together with the insulation on the outside of the vessel, the heat losses have been reduced to a minimum well below 100 B.t.u. per square foot of outer surface. Thermocouples have been placed at various points on the shell recording the steel temperatures, which are well below 700° F. Thus operating conditions justify the fabrication of this vessel of standard grade, fire-box steel. The vessel was welded and stress relieved .

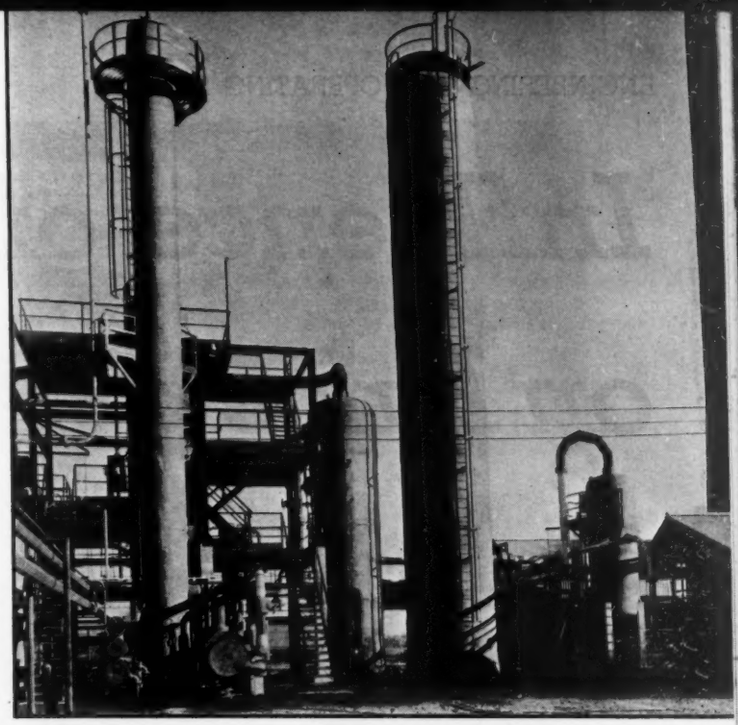
UNIT OF COMPACT DESIGN

There are several other novel features about the design of the Muskegon plant, but in general it embodies most of the principles found today in other types of vapor and liquid-phase cracking units. As may be seen in the accompanying photographs, the unit is very compact requiring an area of about 150 by 250 feet. This is remarkable considering the operation includes, besides cracking, the stabilization of the finished gasoline, absorption of the propane and butane fractions in the gas leaving the unit, and the thermal polymerization of these fractions and the overhead vapors from the stabilizer. The result of combining



Double end-fired furnace, reaction chamber and fractioning equipment. In the right background is shown the 4,500-bbl. topping unit

Phase Cracking by Its Flexibility

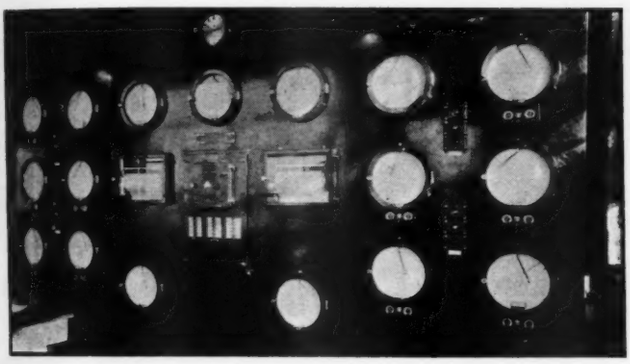


Towers and chambers comprising the new vapor phase unit recently completed by Old Dutch Refining Co. The stabilizer is shown at the left, the vapor heater-unit in the right foreground and the superheater in the right background in rear of the heater

these operations in one unit makes it possible to build this type of plant at a very reasonable initial cost, and because the unit at Muskegon is compact and well instrumentalized, operating personnel is reduced to a minimum.

CHARGING STOCKS USED

Another feature novel to this type of cracking unit is its flexibility. To illustrate this point, the Old Dutch unit was built to crack a straightrun residue produced after topping Michigan crude oil. This residue normally runs about 30 A.P.I. gravity. However, the unit will handle a residue of much lower gravity, or it may be used in reforming operations. Though designed for straightrun Michigan crude it has been subjected to a combination of Michigan and Mid-Continent crudes; the latter shipped to Muskegon by pipe line and tanker via Chicago and Lake Michigan.



Control board in Old Dutch's Muskegon refinery

The Old Dutch negotiated for the purchase of from 2,000 to 3,000 bbls. daily of Mid-Continent crude piped from southwest fields to Chicago and Indiana Harbor, Ind., through the Texas-Empire line and thence moved to Muskegon across the lower end of Lake Michigan by tanker. The lake operation was started with two 6,000-bbl. river barges and the tug Rea Powers, of Boston, early in September.

This operation will be supplanted, however, when the 1937 Great Lakes navigation season opens, by movement from Indiana Harbor to Muskegon in a 20,000-bbl. tanker owned and operated by the Allied Oil Co., of Cleveland. It is expected to handle about 90,000 bbls. a month.

The ability of the T.V.P. unit to crack almost any kind of charging stock becomes a very valuable asset enabling the small refiner to take advantage of distressed stocks at market conditions. It also enables the larger company to convert less valuable stocks for operations in some other part of refining into premium motor fuel and fuel oil.

Another flexible feature about the plant at Muskegon is its ability to make gasoline of almost any octane number, within reason, at the will of the operator. This again is an advantage in meeting competition in the handling of premium gasolines.

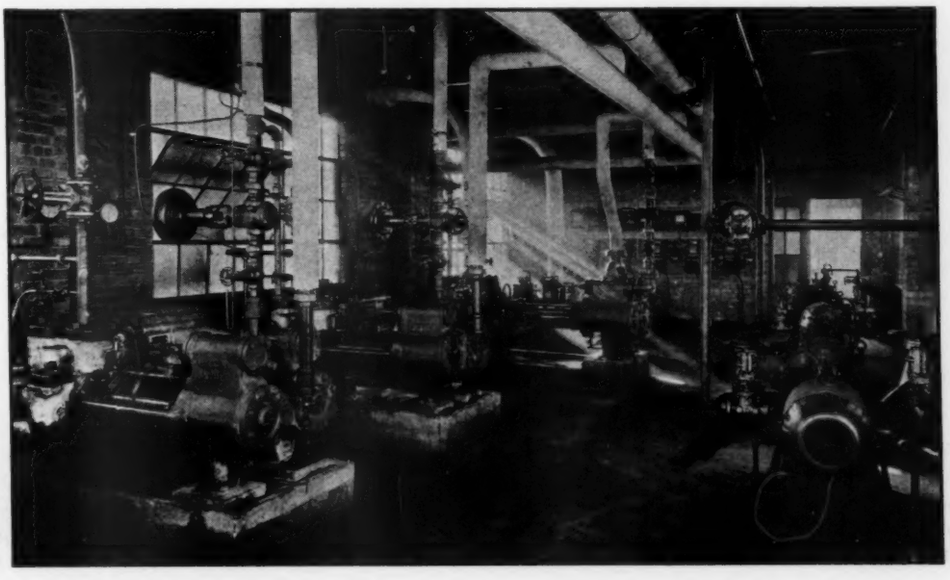
Prior to completion of the unit, the West Michigan Consumers Co. signed contracts with Old Dutch to purchase the by-product gas paying $50,000 in advance and anticipating an output of 1,000,000 to 1,300,000 feet daily during continuous operations.

West Michigan laid 6½ miles of 4-inch pipe from the refinery to its compressor station in the old Muskegon oil field to handle the gas.

In addition to the cracking unit, Old Dutch also had previously installed a new tube still for its skimming unit at a cost of about $10,000 and subsequently a lube unit. After several months of testing and intermittent runs, minor changes were made in construction and the plant was about ready to operate steadily as the new year opened.

R. B. Leydig was the engineer in charge of installation, although V. V. Jacomini, vice president of the Petroleum Conversion Corp., spent much of his time for several months supervising the work in Muskegon. W. R. Newman, formerly with the Sinclair Refining Co. in Montana, is superintendent of the plant.

Interior of the new pump house erected in conjunction with the new cracking unit



A.S.T.M. Book for 1936 Published

The 1936 edition of the Book of A.S.T.M. Tentative Standards (1,390 pages) contains 264 tentative specifications, methods of tests and definitions of terms covering widely used engineering materials. A large number of the standards are included in this publication for the first time, having just been approved during 1936 and a number were revised during the year and are given in approved form.

New tentative specifications published for the first time in 1936 cover the following ferrous and nonferrous materials. Alloy-steel bolting materials and carbon and alloy-steel nuts for service up to 1,100° F.; high-strength structural rivet steel; fabricated steel bar or rod mats and welded wire fabric for concrete reinforcement; high-carbon and quenched-carbon steel joint bars; one-wear and two-wear wrought steel wheels; seamless alloy-steel (4 to 6 per cent chromium) heat-exchanger and condenser tubes, and still tubes for refinery service; single and double refined wrought-iron bars; lightweight and thin-sectioned gray-iron castings; uniformity tests, by the Preece method, of coating on zinc-coated iron or steel wire; hard-drawn copper alloy wires for electrical conductors; sheet and strip phosphor bronze; seamless copper-nickel alloy condenser tubes and ferrule stock; magnesium-base alloy bars, rods and shapes; test for deflectivity of thermostatic metals.

In the nonmetals field there are new specification requirements and tests covering the following: Glazed building units; terms relating to refactories; super duty fire-clay brick (panel test for resistance to spalling); portland cement concrete (test for flow by the flow table); zinc chloride, and electrical insulating materials (power factor and dielectric constant test).

Influence of Humidity on Knock Ratings

By J. R. MacGREGOR
Standard Oil Co. of California

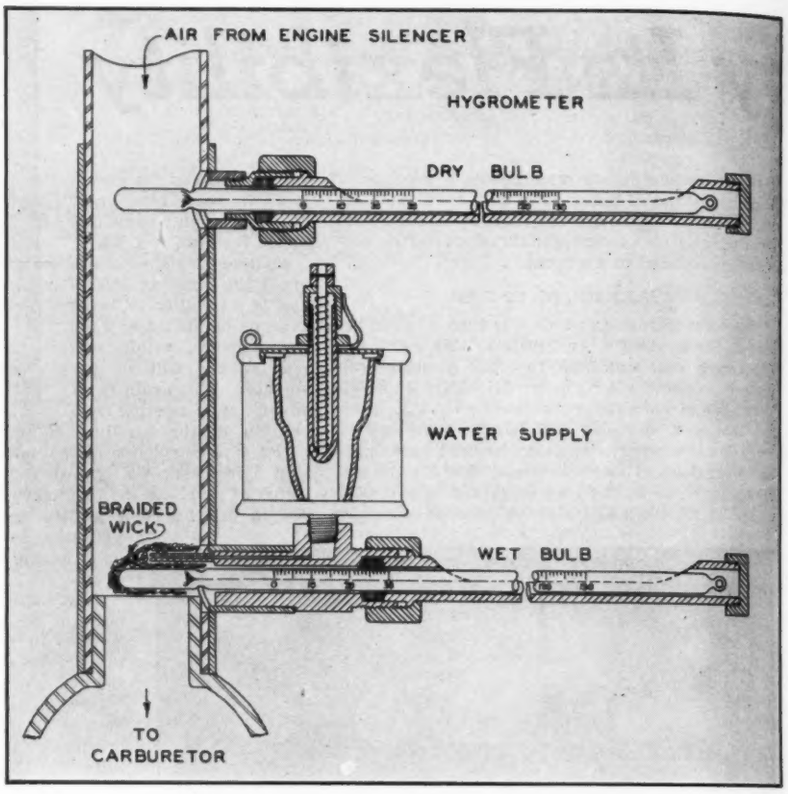


Figure 1—Special engine hygrometer used to indicate the humidity of the air actually entering the engine

S.A.E.—Part of paper delivered before Society of Automotive Engineers, Detroit, Mich., January 11 to 15, 1937

The knock rating of gasolines has undergone a fairly intensive investigation for a period of years. During this time it has been apparent that variables, other than those introduced through personal error on the part of the operator, were having an important influence on the values obtained. It has been realized that some of these are inherent in any test using an engine where cycles are repeated a number of times per minute. Investigations have been made in an attempt to establish the cause of these variations attributable to mechanical causes, and suggestions have been made for controlling them.

With the best available control of all known variables and using the bracketing system of reference fuels, variations in results on the same fuel, but tested in different laboratories, or even in the same laboratory at different times, continue to attract attention. In general, this difference has been most pronounced when rating fuels of widely different characteristics, and indicated the influence of some atmospheric variable on the combustion of the fuel. This suggested that variations in the water vapor present in atmospheric air might be acting differently with different fuels, and an investigation was made to determine the range of atmospheric humidity prevailing in various laboratories throughout the United States for which data were available.

CONVENTIONAL METHODS OF MEASURING

As the first step in an investigation of this nature, it was necessary to obtain a system of laboratory instrumentation and control that would permit the variation in the variable under consideration. Humidity may be expressed as per cent relative humidity, or absolute humidity in terms of pounds or grains of water per pound of dry air,

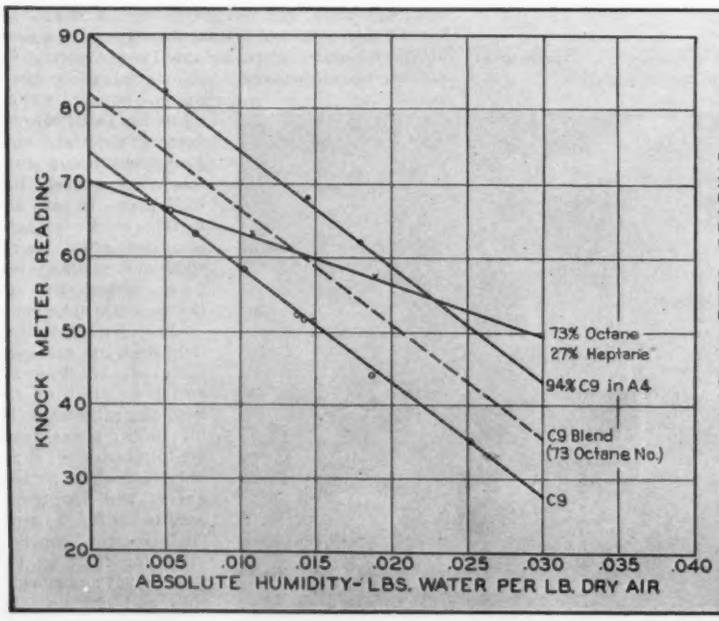


Figure 5—Effect of humidity changes on knock rating of C-9 and 75 per cent octane in heptane

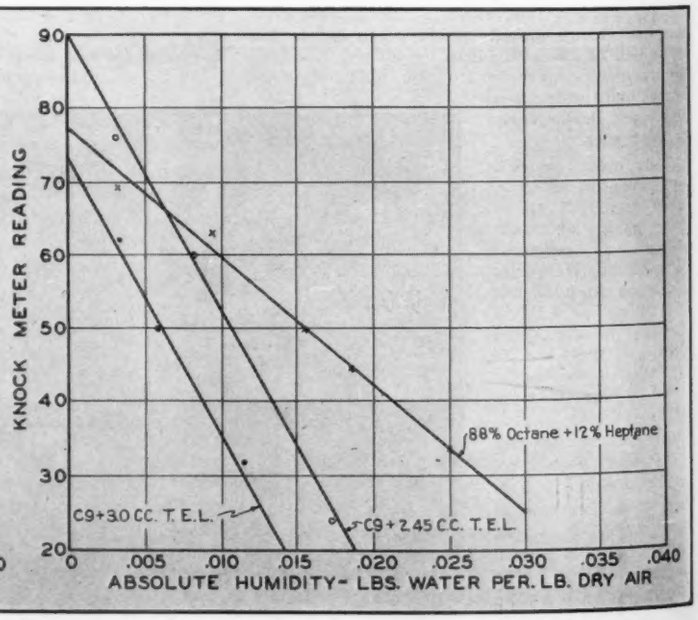


Figure 6—Effect of humidity changes on knock rating of C-9 plus T.E.L. and 85 per cent octane in heptane

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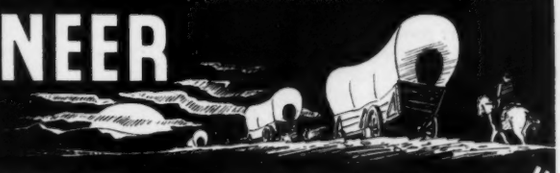

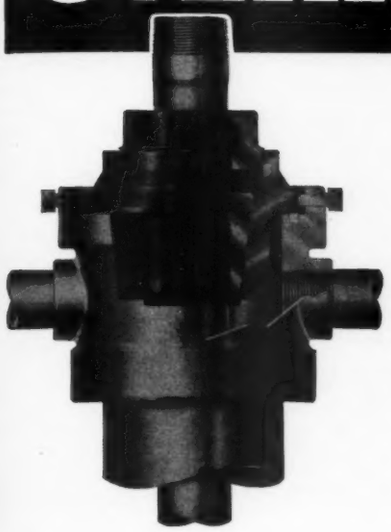

Fig. 216
HERCULES "Overhead Packed" Tubing Hanger with slips, sitting in Casing Head

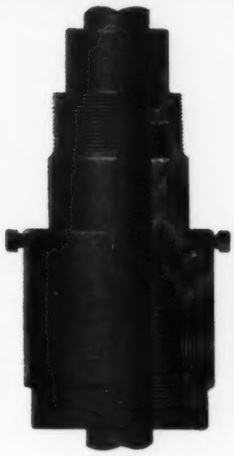

Fig. 204
HERCULES Type C-3 High-Pressure "Overhead Packed" Tubing Head with slips

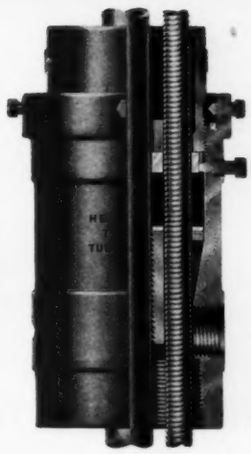

Fig. 210
HERCULES Type R "Overhead Packed" Tubing Head with slips and Conduit for Electric Cable

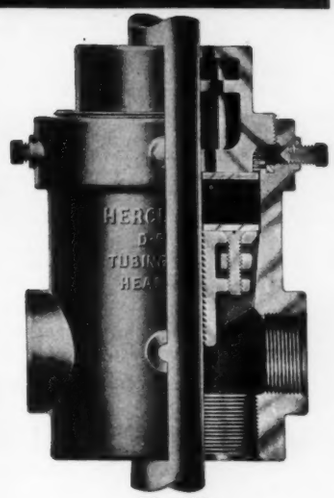

Fig. 209
HERCULES Type D-5 "Overhead Packed" Tubing Head with Interlocking Slips

Fig. 103
HERCULES "Overhead Packed" Cast Steel Casing Head with slips

This country owes much to Pioneers. Columbus set an example which Americans have been following ever since. Pioneers in religious freedom—pioneers in democratic government—pioneers in opening new territory—pioneers in invention—have largely made this great country what it is.

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2. Pressure on the packing can be instantly adjusted, at any time, by merely turning the packing nut.

3. Head can be repacked, if ever necessary, without lifting the pipe or disturbing the well connections—by merely removing the split packing nut, changing the packing, and replacing the nut.

HERCULES manufactures casing and tubing heads for every condition: Forged steel, for pressures from 5,000 to 7,000 pounds; cast steel for pressures up to 3,000 pounds; Combination casing and tubing heads; full-opening and smaller-opening tubing heads, with or without side openings, with or without oil saver tops, and with male or female threads at bottom; tubing heads with conduit for electric cable to enter well and operate bottom-hole pump. HERCULES also manufactures overhead-packed tubing heads in several styles and a full line of overhead-packed flow heads.

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or in terms of vapor pressure of water in suitable pressure units. The relative humidity values, when reported as such, require a conversion to absolute humidity by use of a corresponding dry bulb temperature in order to provide a proper basis for comparison, inasmuch as relative humidity is only a ratio and does not indicate a fixed amount of water vapor.

It is believed that pounds of water per pound of dry air is the most convenient and significant unit to use, and all values in this paper are therefore based on this unit. Vapor pressure of the water in inches of mercury may be converted to equivalent pounds of water per pound of dry air, with negligible error in the normal range, by multiplying by the constant .022. A very useful chart for obtaining psychometric data from the wet and dry bulb temperatures appeared in the November, 1935, issue of "Refrigeration Engineering" and is based on the latest thermodynamic data compiled by the General Electric Co. For use in our laboratory an additional scale has been placed at the left of the chart referred to, in order to obviate the necessity of converting from weight in grains to weight in pounds.

ENGINE HYGROMETER

The danger of obtaining erroneous humidity determinations when using conventional measuring methods led to the development of a special engine hygrometer for indicating the humidity of the air actually entering the engine. The unit shown in Figure 1 has been used with marked success. The dry bulb thermometer installation is conventional in all respects and requires no further discussion. The wet bulb thermometer unit, however, is the outcome of a considerable amount of development, and the design shown is quite satisfactory. It will be noted that the wick surrounding the thermometer bulb is continuously moistened by water supplied from a converted drip-feed oiler. The water is conducted from the discharge of this supply through a small tube projecting into the air stream above, and displayed slightly from the thermometer bulb. The projecting portion of this tube has several small holes drilled radially through it to permit the escape of water at various points. Surrounding this tube is one end of the wick, the other end of which encloses the thermometer bulb in the conventional manner. The water supply has been provided for convenience, while the arrangement shown for wetting the wick is the result of several experimental steps. By this means the water reaching the thermometer bulb envelope is first cooled to a temperature indicated by the wet bulb before actually contacting that instrument. Without this precaution, the water, which is normally at higher temperature than the wet bulb has an undesirable influence on the thermometer indication.

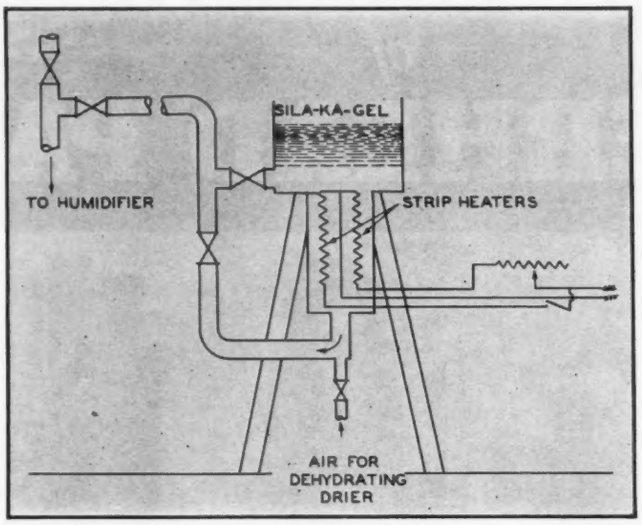

Figure 2—Sketch of the experimental air drier used in reducing the humidity of the air in the laboratory

The design shown in Figure 1 indicates a slip joint between the wet bulb thermometer holder and the air-intake pipe. This precaution was originally included, since it was felt that the moisture evaporated from the wet bulb wick would add an uncontrolled amount of humidity to the air supplied the engine. In order to evaluate this effect, as well as to eliminate any uncertainties as to the accuracy of the values indicated by the above described hygrometer, the humidity was also measured by the following analytical method: Three calcium chloride drying tubes were connected in series between the air supply being investigated and a calibrated wet test meter. The weight of the drying tubes before and after the measured quantity of air has been passed through provides a simple and accurate means of measuring absolute humidity. The humidity measured by the wet bulb thermometer was found to agree closely with the values obtained by this analytical method and no appreciable humidifying resulted from the wet bulb thermometer wick.

AIR DRIER

Figure 2 shows, in diagrammatic form, the experimental air drier used to obtain humidities lower than those prevailing in the laboratory. It consists essentially of a container for drying material, electrical heaters for dehydrating the adsorbent and suitable control valves interposed between the unit and the engine. Five pounds of four mesh and five pounds of 20 mesh Sila-Ka-Gel were used in two layers placed above a retaining screen. These sizes were selected as the most suitable from the small stock of the gel on hand. In order to maintain a low humidity of .002 to .005 pound of water per pound of dry air, it was found necessary to dehydrate the gel every eight to sixteen hours of running, depending upon the atmospheric humidity. This was accomplished by passing compressed air from the line over the strip heaters, and thence through the drier at a temperature of 250° F. to 300° F. The diameter of the adsorbent container used is approximately 14 inches. If it is desired to use other dimensions, a suitable low pressure drop can be obtained by using the packed column formula and charts given in the "Journal of Industrial and Engineering Chemistry," Volume 23, Page 913, 1931, or Page

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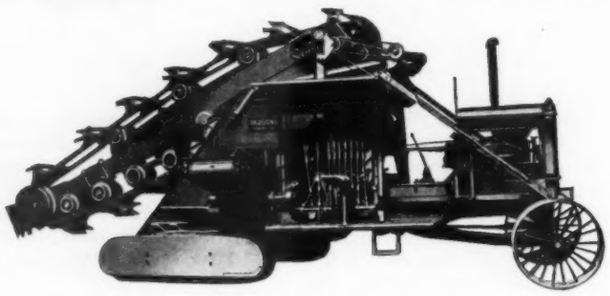

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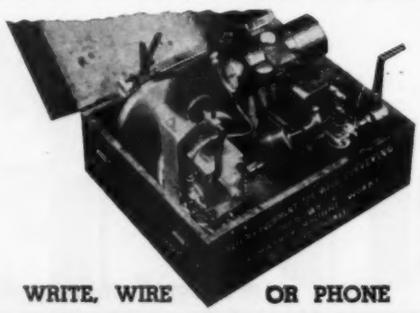

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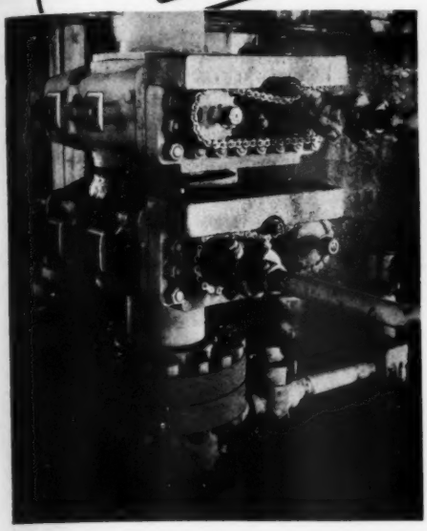

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Size and type of intake_____

AIR COMPRESSOR

Make_____

Bore_____ in. Stroke_____

No. Cylinders_____ RPM_____

☐ Single-acting ☐ Double-acting

Size and type of intake_____

DIESEL ENGINE

Make_____

☐ Plain-Scavenging . . . (Enter under "Gas Engine")

☐ Super-Scavenging . . . (Enter under "Gas Engine")

☐ Super-Charged . . . . . (Enter under "Compressor")

744 of the first edition of the "Chemical Engineers Handbook." The one-half inch of water pressure drop obtained in the drier described was found quite satisfactory as regards engine operation and agreed closely with the formula and charts mentioned above.

The valves shown are for the purpose of providing control of the temperature of the air leaving the drier, and for mixing this air with atmospheric air in any desired proportions before entering the humidifier. By means of these controls the drier may be used merely as a trimmer, and will therefore require dehydrating at less frequent intervals.

A humidifier as now used on engines in the Standard Oil Co. of California laboratory was also used. It consists of a thermally insulated separating chamber provided for the purpose of accumulating and withdrawing any condensate that may occur. Near the top, an indexed needle valve is provided which has both fine threads and a flat taper in order to allow easy control of the steam quantities supplied the engine air. The steam jacketed and thermally insulated discharge tube is provided to prevent condensation of the small quantity of steam which will cause irregular operation of the humidifier.

EXPLORATORY TESTS

Unfortunately, no suitable instrumentation has yet been developed for indicating, on an absolute basis, the amount of knock experienced during the detonating operation of an engine. However, the conventional bouncing pin affords some measure of this variable, and in the following exploratory tests, was used as the best available means of measuring the intensity of detonation. In order to convert these knock meter indications to equivalent octane number changes, two reference fuel blends differing in octane number by a known, small amount, were used with each group of test fuels.

Two or more of the following fuel types were used in each of the tests: Straight run, benzol-straight run blend, cracked, leaded straight run and octane-heptane blend.

In the first test, the compression ratio was adjusted for an approximate mid-scale position of the knock meter when operating on a 68-octane number benzol blend at an intermediate humidity of .0135 pound of water per pound of dry air. The compression ratio was maintained at this fixed value for all subsequent tests on this 68-octane number group of fuels. Maximum knock mixtures ratios were maintained by a slight readjustment of the carburetor as the humidity was changed due to the displacement of part of the intake air with water vapor. Knock meter readings were

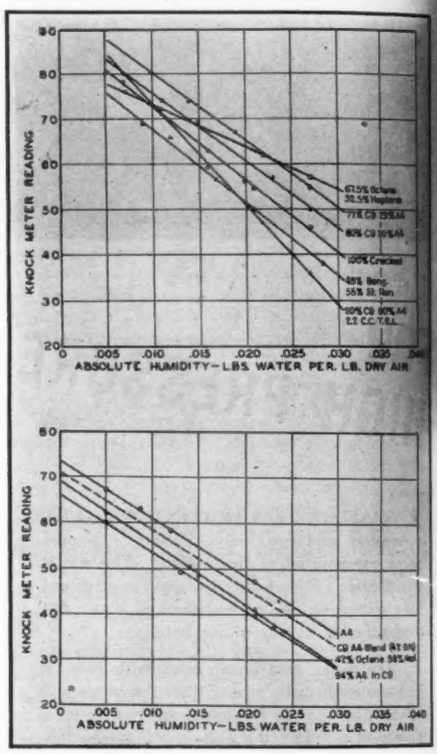

KNOCK METER READING
ABSOLUTE HUMIDITY—LBS. WATER PER LB. DRY AIR
KNOCK METER READING
ABSOLUTE HUMIDITY—LBS. WATER PER LB. DRY AIR

Figure 3—Influences of humidity on detonation of typical fuels. Figure 4 (lower chart) —Effect of humidity changes on knock rating of A-4 and 42 per cent octane in heptane

then recorded over a range of humidities varying from approximately .003 to approximately .03 pound of water per pound of dry air.

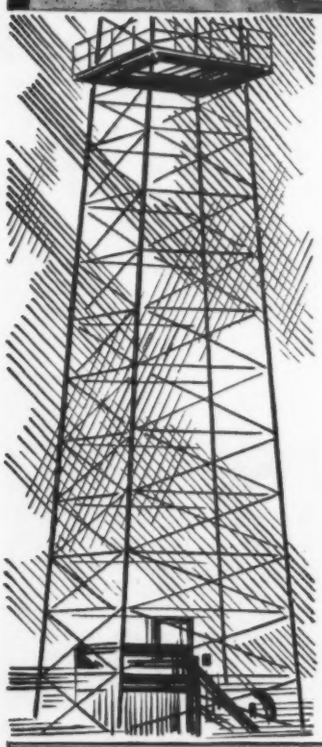
Figure 3 shows the results obtained in this first series of tests. It will be noted that the straight run, the cracked, and the benzol blend showed a similar response to changes in absolute humidity whereas the heptane-octane blend and the leaded straight run blend were at marked variance to the other fuels.

In order to make the relations shown in Figure 3 somewhat more significant, the changes in absolute knock, in terms of equivalent octane number, are shown below for changes in humidity from .002 to .023 pound water per pound dry air which is equivalent to a change in water vapor pressure of 1 inch of mercury.

Octane-heptane	5.1
C9 — A4	7.5
C9 — A4 plus TEL	10.3
Cracked	7.4
Straightrun—benzol	7.9

In this tabulation, the changes are expressed in

REDUCE
MECHANICAL
POWER
TRANSMISSION
LOSSES



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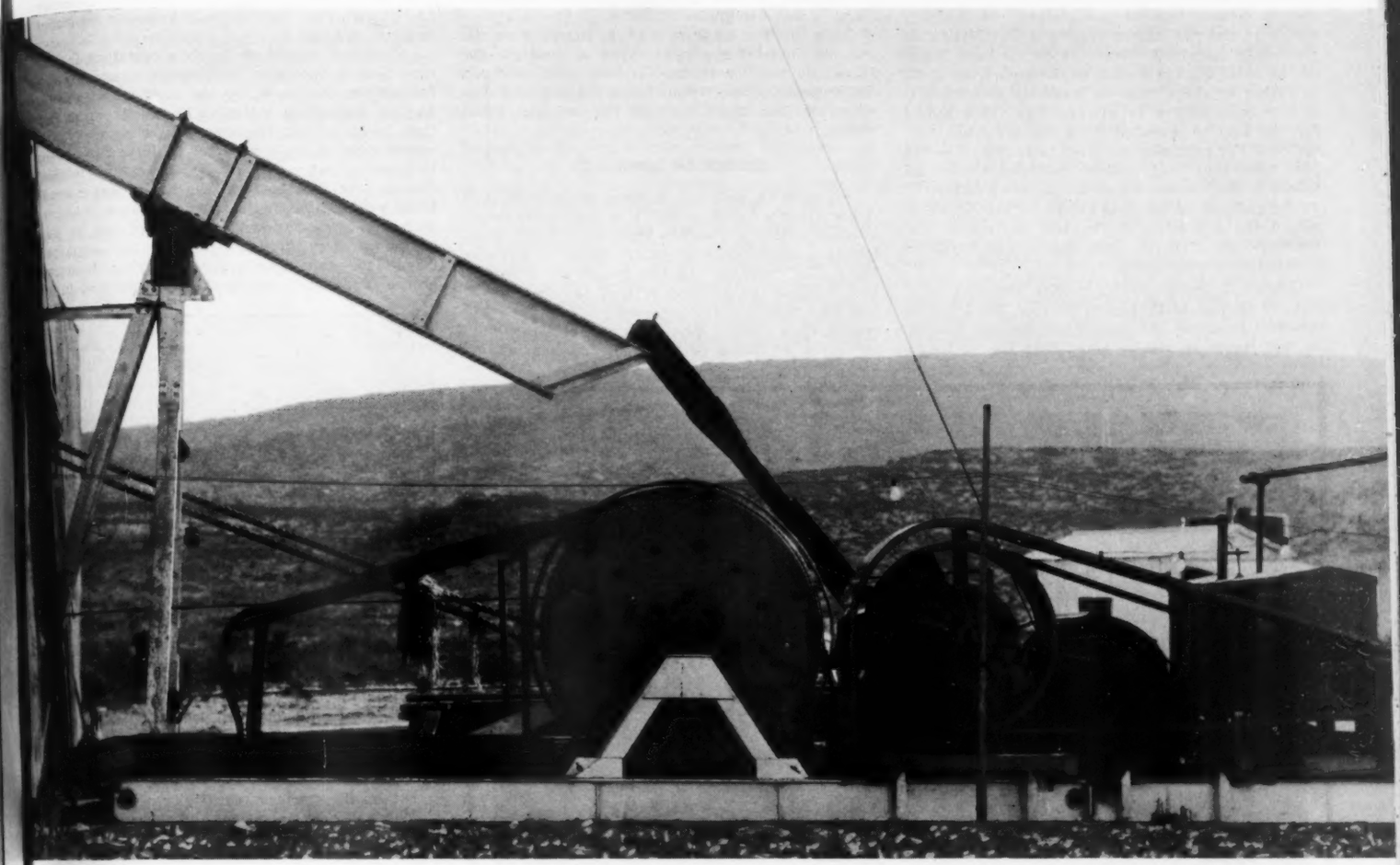

Fig. No. 258. Showing O. C. S. Portable Rig Front W/FC Countershaft and Sand Reel

For Starting or Finishing with Cable Tools

O. C. S. FC COUNTERSHAFT

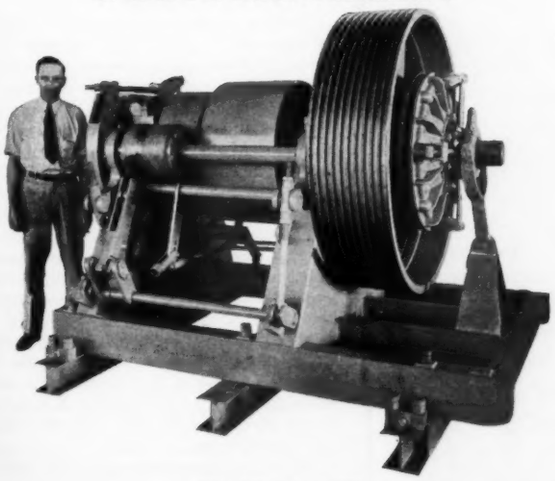

Fig. 199—Type FC

The above illustrates the O. C. S. Type FC Countershaft with 56" P.D. 10 D Groove Forward Clutch Sheave. 26" Disc Clutch, 30 x 18" Drive Pulley, Clamshell Brake and Mounted on Steel Base. The Standard Type FC is equipped with 56" x 15" Crown Face Clutch Pullev.

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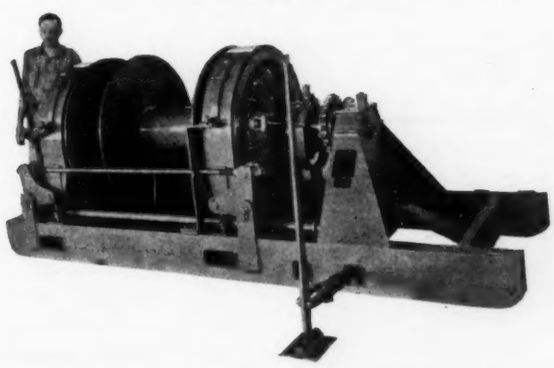

The O. C. S. Twin Brake Sand Reel is a further development of the O. C. S. chain driven sand reel with all of the fast and flexible operating characteristics. It has more than double the braking capacity and is provided with greater spooling capacity. The twin brakes have removable cast drums bolted to each end of the spool and an equalized control tightens the band. A safety lever is provided and the O. C. S. air-cooled disc clutch has a capacity of 100 H.P. per 100 R.P.M. The spool has a capacity of 15,000 ft. of 9/16" line or 12,000 ft. of 5/8" line. The shipping weight is 7,500 pounds, which shows a maximum capacity for minimum weight. Timken Bearings throughout. Request Bulletin "R."

See Pages 1307 to 1336 in 1937 COMPOSITE CATALOG.

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equivalent octane numbers by applying knock meter versus octane number correlation obtained by means of the two known reference fuel blends, as previously described. Since the curves have slopes of the same algebraic sign, to determine the error in rating by the change in humidity indicated, it is merely necessary to subtract the value shown for the fuel in question from the reference fuel desired. For example, the error in rating C9 — A4 plus tetraethyl lead against unleaded C9 — A4 would be 10.8 minus 7.2 or 3.6 octane number.

An analysis of the data shown in Figure 3 suggested the extension of the test to include the investigation of fuels, both higher and lower in nominal octane numbers.

Figure 4 indicates the results obtained in a manner similar to that used in Test No. 1 but is confined to C9 — A4 and octane-heptane blends. In this figure it will be noted that the variation in response of the two fuel types to humidity changes was negligible.

In a similar manner, Figure 5 illustrates the relation found for similar types of fuels in the 73 octane number range. In this case, however, the response of the octane-heptane blend was considerably less than that of the reference fuel blends.

SOURCE OF DIFFICULTY

Figure 6 is, perhaps, of more importance than either Figures 4 or 5, in that it indicates the source of some difficulty that has been experienced in attempting to calibrate secondary reference fuels in the higher brackets. In this range the reference fuel requires the addition of lead. In this case it will be noted that the response of the leaded reference fuels was somewhat greater than found in Test 1, as shown in Figure 3, and considerably more pronounced than for the unleaded reference fuels used in the tests for which results are shown in Figures 4 and 5.

A critical review of the data contained in Figures 3 to 6, inclusive, will indicate that the differences in each case are not in exact agreement. In this connection attention is called to the fact that in converting these results to an equivalent octane number basis, an error of 10 to 20 per cent is possible, since the equivalent octane number change was derived from the knock meter sensitivity as indicated by the two reference fuel blends, differing by a "known" amount of one or two octane numbers. If a .2 octane number error had been made due to an error in mixing these reference fuel blends, an error of 20 per cent in all other equivalent octane number values on the same chart compared to the values on another chart would result in the case of the one octane-number bracket and a 10 per cent error in the case of the two octane-number bracket.

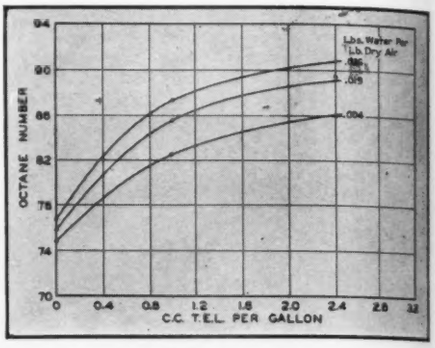

Figure 7—Effect of barometric pressure changes on detonation

Due to the apparent sensitivity of certain types of fuels to knock intensity, and therefore perhaps also to bouncing pin settings, the relative values shown in the various figures have been found in subsequent tests to vary somewhat in direction as well as magnitude. As an illustration, tests of a similar nature to those for which the values have been shown, have indicated slightly different relations, particularly as regards the relative response of octane-heptane and straightrun fuels. In the latter tests, somewhat different conditions may have arisen due to a slight difference in the method of establishing standard knock and also to the bouncing pin settings occasioned, in part at least, by the change in knock intensity.

DRY-AIR PRESSURE

It has been assumed that the influence of humidity on detonation is merely the result of changes in dry-air pressure caused by the change in water-vapor pressure. If this were true, detonation should be influenced to the same extent by a given change in dry-air pressure whether that change is caused by a variation in either barometric or water-vapor pressure. The following tests, covering a range of barometric pressure were made to compare the influence of the two methods of changing dry-air pressure.

The laboratory engine was equipped with surge tank and means for controlling the intake-air pressure to any predetermined value below the prevailing atmospheric pressure. In view of the relatively small influence of normal changes in water-vapor pressure on the dry-air pressure, the changes in barometric pressure required for an equivalent effect by the throttling of the intake air were limited to the order of 2 inches of mercury depression.

With the throttling set-up and with the humidity maintained constant, tests were made using the same types of fuels as employed in the humidity tests. As in the case previously reported where the humidity was changed, variations in knock intensity were determined by means of the knock meter. The testing of two normal reference fuel blends again provided a means of establishing the sensitivity of the knock meter to permit the evaluation of the results in terms of apparent octane

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number changes brought about by differences in intake-air pressure.

Figure 7 represents the data obtained in these tests, plotted as changes in intake-air pressure and corresponding changes in apparent octane number. The curves shown in Figure 7 yield some rather interesting relations. It will be noted that the leaded reference fuel was least affected, the benzol blend moderately affected, while the cracked, straightrun and octane-heptane blends responded most to changes in intake-air pressure. In order to make the relations shown in Figure 7 more comparable with the data from Figure 3 previously tabulated, the changes in apparent octane number for similar changes in dry-air pressure of 1 inch of mercury are shown below:

Octane-heptane blend	3.4
C9 — A4	3.4
C9 — A4 plus tetraethyl lead	2.5
Cracked	3.4
Straightrun-benzol blend	2.8

A comparison of the tabulated data taken from Figures 3 and 7 illustrates very definitely that dry-air pressure change alone does not explain the effect of humidity on detonation. For instance, attention is called to the relation of the effect on the leaded reference fuel to the effect on other fuels tested, as shown in Figure 7. Had humidity been effective merely from the standpoint of the replacement of air by water vapor with a resultant decrease in dry-air pressure, the relation shown on Figure 3 for this type fuel would have been reversed. Therefore, the net effect of humidity changes on leaded reference fuel blends is apparently the difference between the effect of water vapor on combustion and the effect of diminished air pressure. It may therefore be concluded that correcting for humidity on the basis of dry-air pressure alone will not eliminate the necessity for humidity control.

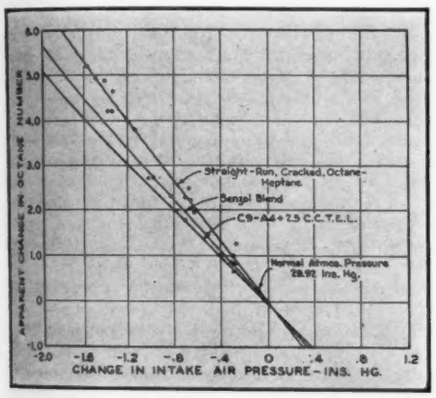


Figure 8—Effect of humidity on calibration of straightrun secondary reference fuel

Using a blend of reference fuel C9 and A4 of such proportions that when 2.5 cc. of tetraethyl lead per gallon were added the nominal octane number was 70, two sets of tests were carried out. In each case the leaded fuel was directly matched by means of unleaded reference fuels C9 and A4. With a constant humidity of .008 pounds of water per pound of dry air, the matching octane number assigned from the published calibration of these two reference fuels was 70.3 at a barometric pressure of 30.22 inches of mercury. With this pressure, but with the humidity raised to .0293, equivalent to a reduction in dry-air pressure of 1 inch of mercury, the matching octane number was 73.3, or a difference of three octane numbers. This difference compares favorably with the difference of 3.6 obtained from Figure 3 for similar fuels.

In the second test the dry-air pressure was again reduced by 1 inch of mercury, but in this case by throttling the intake air rather than by raising the humidity. The octane number obtained by matching was 70.8, a difference of .5 octane number. This compares with the difference of .9 obtained from Figure 7.

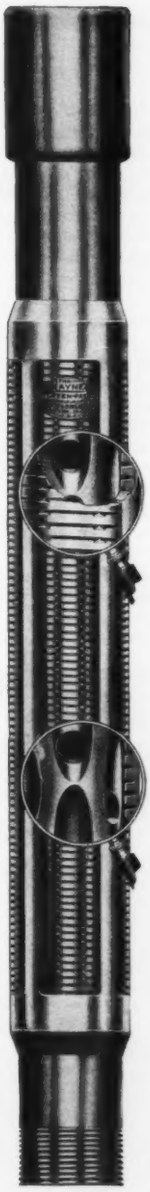
A third test consisted of calibrations of a leaded straightrun reference fuel, made in the normal manner except that controlled humidities of .004, .019 and .036 pound of water per pound of dry air were used. The results of these calibrations are shown in Figure 8.

Apparently in place of a fixed calibration curve, a family of curves can be drawn, one for each humidity existing at the time of calibration. Definite changes in our calibration curves, until now unexplained, have occurred from time to time when checking the calibration of our secondary reference fuel against octane-heptane. Figure 8 explains, to a large measure, the cause of the discrepancies previously noted.

Attention is called to these tests particularly since they are indicative of normal changes in atmospheric conditions and were made with normal fuels. Humidity is therefore a variable of sufficient importance to warrant adequate control in the laboratories engaged in the evaluation of knock rating of fuels.

An analysis of data indicates that, at the time of year in which the C.F.R. Motor Method was originally established as a means of rating fuels in the laboratory in accordance with their road performance, the humidity was probably in the range of .013 to .014 pound of water per pound of dry air. Specific data on this question are not available, but the average humidity prevailing at the same time of year in the various laboratories participating in the cooperative calibration of reference fuel C9 was .0135 pound of water per pound of dry air. This value was therefore established as the approximate mean around which humidities were varied in the exploratory tests herein discussed and still remains as the standard humidity under which all knock ratings in this laboratory are made.

Penny Wise Pound Foolish



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Secondary Recovery Methods Used to Revive Bellevue Pool

By MITCHELL TUCKER

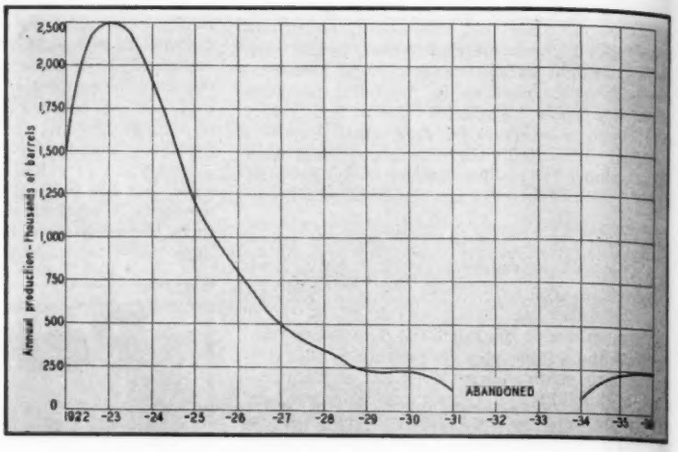

Chart showing annual production of the Bellevue pool

Closer well spacing and secondary recovery methods applied to the Bellevue pool of northern Louisiana have brought this formerly abandoned field back into a strong position in the crude oil producing picture of this territory. Experimental work has been done in water-flooding, steam injection, closer spacing and repressuring, all of which have indicated their worth in increasing daily production and adding materially to the ultimate yield of the heavily saturated sand.

The Bellevue field, situated in the west central portion of Bossier Parish, Louisiana, was discovered in 1921 and development continued through the year 1923. During that year 2,250,057 bbls. of oil were produced, establishing the peak production for the pool. Approximately 300 wells were completed throughout a producing area of 820 acres. Numerous wells flowed initial productions as high as several thousand barrels, and flowing life averaged about two years. Little gas was associated with the heavy 19-degree A.P.I. crude, and the small pressure was quickly dissipated. From the beginning considerable water occurred with the oil in the form of a tight emulsion, and treating has always presented a producing problem and a major item of expense. The asphaltic content of the crude, averaging about 26 per cent, served as the emulsifying agent, and the slight differences in specific gravity of the viscous crude and water made separation slow and in many cases impractical.

At the end of 1931 a total of 9,075,605 bbls. had been produced from the field, but the annual production had declined from the aforementioned peak of 103,930 bbls. Due to the viscous nature of the crude, very low gas pressure, large volumes of water with excessive treating costs, high operating costs, and low market price at that time, a general abandonment was made of most properties there. Only the Louisiana Oil Refining Co. retained its producing leases, other operators allowing title in their leases to revert back to the original landowners. The field remained inactive during the years 1932 and 1933.

In the latter part of 1933 Premier Investment Co. of Fort Worth leased a large group of these abandoned properties. Subsequently, through the reconditioning of some wells, and the drilling of additional wells, adjacent or between old producers, and the application of secondary recovery methods, they have steadily increased production until during 1936 the entire field produced a total of 228,575 bbls. Deducting the 94,470 bbls. produced from the Louisiana Oil Refining Co. properties, a total of 134,105 bbls. may be ascribed to the redevelopment work during the year. Even though a great deal of the secondary recovery effort was at first of an experimental nature, the attractive increases obtained in daily production has well warranted the extent of their application.

The Bellevue field is situated upon a very pronounced dome, having a closure of 830 feet on top of the Nacatoch sand. The Nacatoch sand (of Upper Cretaceous age) carries the saturation, and is penetrated near the apex of the dome at about 280 feet below the surface, and is topped as low as 400 feet extending down flanks. Faulting and innerfaulting cut the entire Upper Cretaceous series, and the Nacatoch is notably broken and blocked by numerous northwest-southeast trend faults. The main accumulation from the field is found in two elevated blocks, the principal pool to the north consisting of about 700 acres on top of the dome, and the smaller producing areas at the south end of the dome.

Although the Premier Investment Co. redeveloped properties extending throughout the dome, the majority of experimental work has been done on its 80-acre Wyche lease, described as the north half of NE quarter of section 14-19n-11w. (See Figure 1.)

A knowledge of the lithological character of this heavily saturated Nacatoch section here is especially desirable in considering the application and results of the secondary stimulation applied. The sand is about 140 feet thick on the Wyche lease, the first half being almost solid sand practically free of shale breaks. Below this point a calcareous, medium grained, loosely consolidated sand, with numerous limestone streaks, some very fossiliferous in character, are found, ranging from a few inches to about 2 feet thick. These streaks are thought to be highly permeable, and possibly act as channels to the well bore. Cementation has rendered some of the lime streaks impervious, but experience has indicated that for the most part they are far more permeable than the sand itself, and they probably persist from well to well. Uniform lithology is usually considered an essential feature of a reservoir under consideration for repressuring or flooding, but these irregularities of the section here have thus far seemed to assist rather than hinder artificial pressure methods.

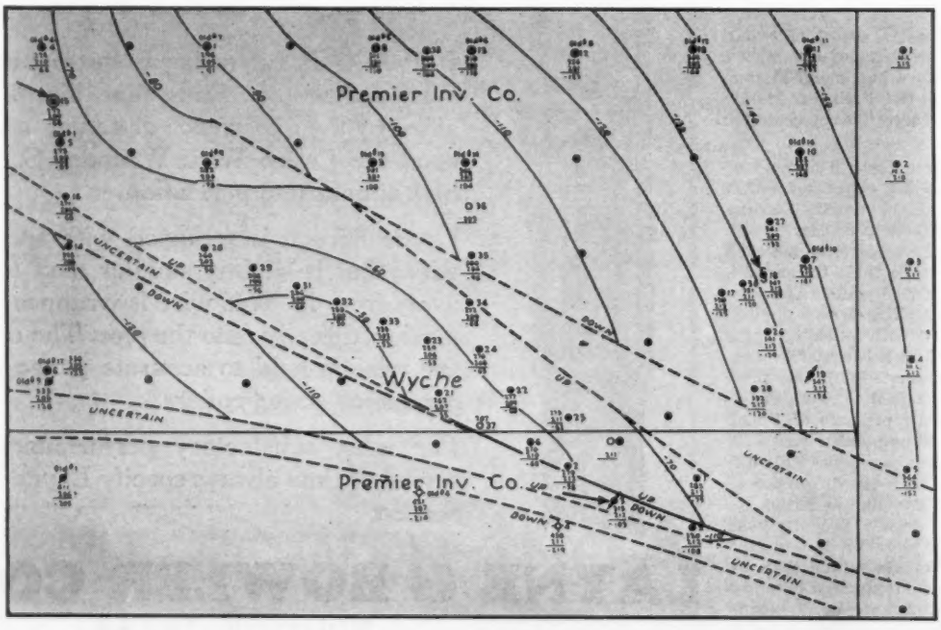

Figure 1—Wyche lease where experimental work in the application of secondary recovery methods has been carried on. The three injection wells are indicated by arrows

Generally speaking, the sand is too loose to permit accurate porosity or permeability determinations, although the average porosity figure has been considered as 25 per cent. The highly permeable character of the sand is indicated by the large initial productions of the heavy oil under such low pressure, although probably the persisting lime streaks acted as carriers to the wells of highest initial flow.

The oil content of this Nacatoch sand body, always a first consideration in any artificial drive project, is exceedingly high at Bellevue. Considering the Wyche 80-acre tract, a laboratory examination of cores from a well on the extreme

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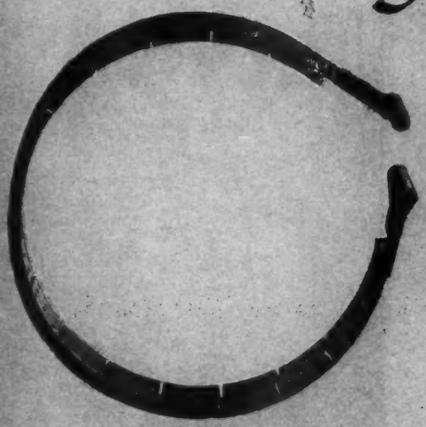

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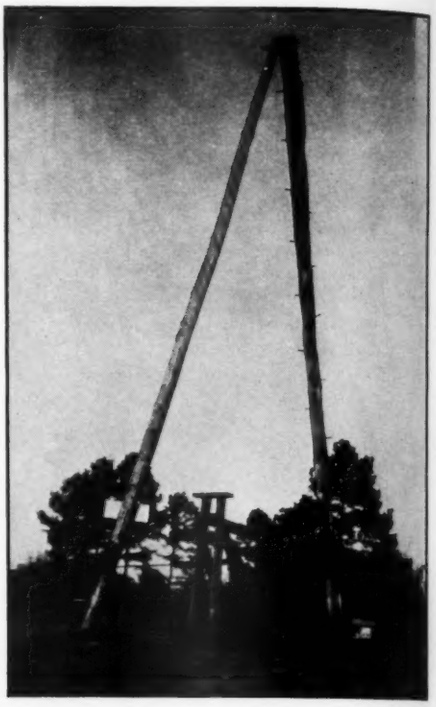
western edge indicated a total content of 115,380 bbls. per acre, or 1,640 bbls. per acre foot. Similarly, on the eastern side of the property cores tested 113,600 bbls. per acre, or 1,760 bbls. per acre foot. Up to the time of abandonment the Wyche property had produced 673,394 bbls., or a recovery of about 8,400 bbls. per acre, or about 12 per cent. By the means now being employed, a much cleaner drainage of the sand is assured through a long extended and profitable life.

CLOSER SPACING

At the time the Wyche lease was shut down in 1931 the 17 wells had obtained a recovery of 40,000 bbls. per well (spaced approximately one well to each five acres). Wells were averaging 3½ bbls. per well at the time of abandonment. At the beginning of operations in 1934 some of the old wells were reconditioned and placed back on profitable production. A tentative pattern of one well to each two and one-half acres was adopted, and 17 new wells have been drilled, each with a satisfactory initial pumping gauge and sustained production. Some of the initial 24-hour pumping gauges were as follows: Wyche No. 24, 75 bbls.; No. 22, 75 bbls.; No. 20, 65 bbls.; No. 34, 30 bbls.; No. 35, 30 bbls.; No. 30, 12 bbls.; No. 31, 18 bbls.

Cutler's theorem as outlined in a report of the Bureau of Mines several years ago is that if four times the number of wells are drilled, the recovery per acre will be doubled. Even if this recognized principle does not maintain in the cases of very close spacing, it is established that the more wells drilled the lower the recovery per well, but the greater the recovery per acre. Generally speaking,



Typical pumping well at Bellevue

by doubling the number of wells here it is reasonable to assume that ultimate yield will be increased by one-half again. Such a practice might not be profitable in deeper fields, but the shallow depth here with minimum drilling costs, warrants the additional wells. The recovery per acre from the Wyche lease is being materially increased by the closer spacing in this sand carrying the viscous crude which is neither motivated by an active natural gas or water drive.

SECONDARY RECOVERY

In evaluating the actual results obtained from the repressuring, flooding, and steam injection experiments here it is desirable to know the actual increase in daily production obtained from each, but lease conditions do not permit individual well gauging from day to day. No wells have been completed in the field during the past 60 days; therefore, by taking the aggregate field production (and assuming only normal decline) some indications of the artificial lifting methods may be obtained. During the month of November, 1936, the field produced 21,450 bbls., but during December the field production was 24,490 bbls. Daily productions into January are being maintained and slowly increasing. Hence, a material increase in production is noted over the last 60 to 75-day period, without the completion of additional wells.

REPRESSURING

Well No. 3 on the south end of the lease is being used as an air injection well. Casing is set at or near top of sand. About 150,000 feet of compressed air is introduced daily at a pressure ranging from 25 to 32 pounds. Gradual increases in production have been noted in wells Nos. 1, 2, 5, 6, 22 and 25 (See Figure 1).

WATER FLOODING

Work on this project has been largely of an experimental nature to determine if the permeable lime streaks in the lower section of sand would permit an effective artificial water-drive, and thus far it has proven its motivating force in moving oil to the well bore. No systematic flood has

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ever been tried on sands containing such viscous oil before, and the experiment here is being watched with considerable interest.

EXPERIMENTING ON OLD WELL

Well No. 15 on the extreme western line of the Wyche property, formerly a producing well, is being used for injection purposes, having its casing set near top of the fully penetrated sand. Water is obtained from a nearby well and is placed into No. 15 under the force of gravity only. Well No. 4 one location to the north offers definite indications of benefit from the water injection, and wells Nos. 5 and 7 are reported to be maintaining and perhaps increasing their production.

If, after additional experimenting, it is established that the highly permeable sand can be effectively drained through the injection of water at low pressures, a spacing pattern may be adopted and new wells drilled suitable to the systematic application of the drive.

The introduction of steam into the sand to lower viscosity of the crude and permit its more rapid movement to the well bore constitutes one of the most interesting and unique secondary recovery methods tried in recent years. The heating of sands has been proposed and tried many times in the past, but conditions necessary to its success have seldom been so favorable as at Bellevue. Here a relatively high reduction in viscosity may be expected at a shallow level, a cheap supply of fuel is available from deeper gas wells in the south end of the field, and the high porosity and permeability means an assured delivery of the heat deeper into the sand body, with a lesser per cent of heat being absorbed by the sand grains.

Susceptibility of this crude to a lowered viscosity by heating was indicated in laboratory tests. At the underground temperature of the oil (60° F.) the viscosity tested 6,000 Saybolt seconds, or some 70 times as viscous as the average Mid-Continent crude. At boiling point the viscosity dropped to 78 seconds, or a little less than for average Mid-Continent crude at 60° F. In other words, by underground heating to the boiling point the oil would be 77 times more fluid and flow that much more readily than at its normal temperature.

Well No. 18 is used as steam injection point. Steam is generated from two oil field boilers (volume not gauged), located about 60 feet from the injection well. The steam line runs through an insulated trough to the point where it is delivered down tubing into the sand at about 90 pounds pressure. No insulating material is used between tubing and casing; steam is not superheated.

Effects of this injection is noted in production increases, and temperature of oil produced from nearby wells. Fluid from well No. 30 located one location to the west tested 119° F. on a day at atmospheric temperature of about 50° F. Wells Nos. 7, 10 and 17 produced a fluid of about 76° F., while Nos. 26, 27 and 28 tested about 70° F. An overall increase of from 15 to 20 per cent in daily production has been noted from this group of wells affected by the application of heat to the sand.

OIL MINING

The very high oil content of this thick sand, occurring at such a shallow depth, and being void of troublesome gas pressure, has marked the Bellevue field as a possible and attractive site for an oil mine at some future date.

Steam injection well showing insulated steam line from the boiler site

Favorable conditions essential to a profitable oil mining project to 1,500-foot levels have often been listed as follows:

1. There must remain at least 5,500 bbls. per acre of recoverable oil.
2. There should be a tight, firm shale stratum about 20 feet thick near top of the oil sand.
3. The price of oil at top of the shaft should be at least $2.25 per barrel.

Although the present price of Bellevue's 19 degree oil is far below the $2.25 stipulated figure, the shallow depth and remaining oil content much higher than the 5,500-bbl. per acre figure somewhat compensates for this price deficiency, which in itself may be corrected in future years.

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METHOD OF SERVICE—One set of not less than three (3) and not more than five (5) samples of preferably fresh cores *with visible indications of a bedding plane* and obtained from within a range of depth of 30 to 50 feet, carefully packed to avoid breakage, should be mailed to our Laboratory at 549 East Bixby Road, Long Beach, California. The samples should be accompanied by a letter stating the depth at which they were taken, also identifying the well by a Code Number and its approximate location by naming the Field, County and State. The inclination and its direction of that part of the hole from which core samples originate should also be given.

The samples must be *not less than two (2) inches in diameter and three (3) inches long, perpendicular to the axis.* Samples of larger sizes are preferable.

Samples must be marked "Top" and "Bottom". This is important as otherwise the direction of the bedding plane might be reversed by 180°.

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a. For determining the Orientation from a set of three to five sample cores—$150.00.

b. If polarisation fails to show, the charge will be only $75.00.

c. If after preparation of cores, no stratification is visible, the charge will be only $40.00.

d. If during test polarisation or stratification fails to show and customers submit within two weeks another set of samples *from the same well* and if determination of the orientation of this second set is successful, the fee for this second test will be $150.00 minus the amount paid for the first test.

This charge is limited only to the second of two successive determinations.

If core samples are called for at customer's location at his request, a transportation charge of ten cents (10c) per mile will be charged for the round trip.

Remittance covering service fee must accompany cores shipped from foreign countries.

CONDITIONS—Tests are made at the customer's risk and the Sperry-Sun Well Surveying Company does not assume any liability from any cause.

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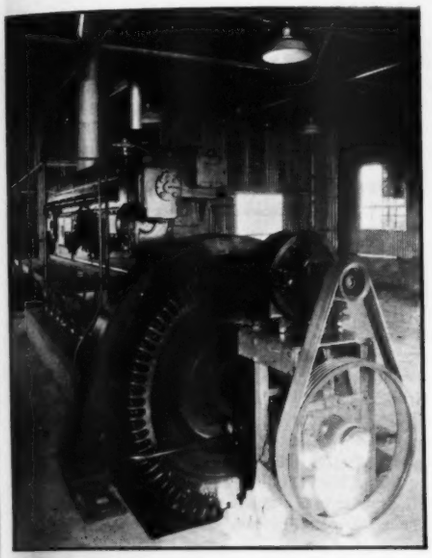
OPERATING IDEAS

Exciter Above Drive-Shaft

One oil producer operating in the Fitts pool, near Ada, Okla., has devised the hook-up shown in the accompanying photograph to drive the exciter for a generator in a recently completed power plant. A base was con-



structed directly over the outboard bearing at the end of the shaft and the exciter mounted on the base, 30 inches from center to center. A V-belt drive is used. By using this hook-up the operator is able to conserve floor-space as well as obtaining a shorter, more efficient drive with the belt.

Hand Pump for Picking Up Engine Water

A pipe line company operating near Oklahoma City, Okla., has devised a simple method for handling the engine water of its large diesel engine. When the engine is shut down the water is drained into a concrete pit in order to prevent the engine from freezing. It is then replaced in the engine by a hand rotary pump placed on top of the pit. This station operates with certrifugal pumps and cannot pick up the water by suction as in the case of stations with reciprocating pumps. This method of handling has proved economical and if necessary to treat the cooling water, it has been found to greatly reduce amount of treating.

Novel Hot-Air Heater

The storekeeper of a large supply company has devised the hot-air heater shown in the accompanying photograph in order to divert a stream of warm air into any part of the warehouse desired. It consists of a "T," a swedge-nipple and a piece of 24-inch pipe with a 16-inch fan blowing the hot air into the room. Patents have not been applied for as yet according to the "inventor."

Pumping Power Operates Pipe-Line Pump

An oil company operating in the Chandler field has installed a geared-power for pumping 10 nearby wells and is utilizing this power to pump the oil from 14 wells to the main-line station. This was done by using a pull-rod made from 3-inch tubing, reinforced so that it will not flex, attached to a pendulum on one end and to the geared power on the other. The pendulum in turn is attached by a rod to the piston-rod of the 12-inch stroke pump. The pump handles as much as 600 bbls. of oil per day at pressures as high as 400 pounds.

Lubrication Requirements for 1937 Rear Axles and Transmissions

By G. C. MATHER
Frank Harris Floyd, Inc.*

For several years automobile manufacturers have been reducing the overall height of their vehicles. During this period engine performance has been stepped up through the general use of aluminum cylinder heads, better carburetion, and other design changes.

It is obvious that if the size of transmission and axle gear sets remain unchanged and engine output increased, gear sets must operate under higher unit pressures. Additional demands placed upon most automotive gears have become so great that normal mineral oils are no longer capable of protecting them, when operated under maximum load conditions. Small diameter road wheels and tires have brought rear axle housings closer to the ground. Road clearance has been so decreased that ring gear diameters could not be increased to compensate for the greater loads imposed by the engines of higher output.

On account of cost and weight considerations as well as its effect on floor board conditions in the driving compartment, transmissions are in general smaller in proportion to the work they have to perform than was the case several years ago.

The problem of successfully lubricating these heavily-loaded transmissions and axles was accomplished through the introduction of so-called "extreme pressure" lubricants. In the past three years, every car of American manufacture has found it necessary or desirable to employ E.P. lubricants in one or more of its gear sets for the original factory filling.

There has so far been no generally accepted and authoritative definition of an extreme-pressure lubricant. Several laboratory machines for the purpose of demonstrating extreme-pressure lubricant performance have been marketed. These machines differ as to the results of tests on any given E.P. lubricant. Variations are due to the differences in: Materials and finish of test speciments, rubbing velocities, method of applying load, etc. Results obtained with any lubricant on one machine usually are quite different if the lubricant is retested on a machine of different make.

It is not our purpose at this time to discuss the merits or shortcomings of various lubricant testing machines. It might be said, however, that to reach a conclusion as to the suitability of a lubricant, covering all phases of gear lubrication, and based upon a short-time run, in a laboratory test machine, is the ultimate of optimism. When operated in the usual manner, such tests positively are not lubrication tests but are proofs of the degree of chemical activity of the E.P. agent employed. The final decision of the effectiveness of any E.P. lubricant can only be determined by experience on the road, with vehicles operating under unit pressures which will result in failure if normal mineral oil were used.

Chief concern at this time is the proper lubrication of 1937 model passenger car steering gears, transmissions and rear axles. A disturbing element to all oil marketers is the problem of safely lubricating the hypoid rear axles with which many of the new cars are equipped.

A hypoid rear axle design differs from the familiar spiral bevel type in that the bevel pinion is moved from its normal position downward and closer to the ground. The axis of the pinion remains approximately parallel to the ground.

By using this design, the propeller shaft is lowered away from the car floor. It thus becomes possible to lower the floor, or to either eliminate or reduce the tunnel in the rear compartment of some cars.

The axis of the bevel pinion in a hypoid design does not pass through the center of rotation of the ring gear, as is the case in a spiral bevel axle. Any relocation of the pinion axis from that occupied in a spiral bevel axle, results in sliding action between mating gear teeth at the pitch line. The amount of sliding action increases with the amount of offset of the pinion. Hypoid type bevel gears have been referred to as of "semi-worm" design.

In the paper read by H. R. Wolf, of General Motors Research Laboratories, at the A.P.I. meeting, in Chicago, November 13, 1936, the statement was made that unit pressures between mating rear axle gear teeth may be as high as 350,000 to 400,000 pounds per square inch. He states that sliding velocities between gear teeth may be 1,800 feet per minute or higher.

Maximum pressures are encountered when operating in low gear, when sliding velocities between teeth are low. Maximum sliding velocity between opposing gear teeth is reached at high car speed, when unit pressures do not reach maximum.

Sliding action is more severe on the coast or reverse side of the gear. This is due to the spiral angle at which the gear teeth are cut. The service condition most difficult to lubricate hypoid gears is when coasting down hill in second speed and using the engine as a brake. A trailer attached to the car will increase the possibility of gear trouble.

The greater portion of the operating life of most passenger car gear sets is at loads and and speeds far below maximum. If reasonable precaution regarding axle lubricants are observed, the average 1937 hypoid rear axle should give little or no trouble.

The possibility for trouble, however, exists in every hypoid-equipped car sold. We cannot emphasize too forcefully the desirability and necessity of: Either refusing to lubricate hypoid rear axles at all, which you cannot do, or provide a lubricant complying in every respect with specifications as issued by leading automobile manufacturers.

The belief has frequently been expressed that extreme-pressure lubricants as commonly marketed, during the past several years, were adequate for hypoid gears. This theory has been supported by the fact that many companies dispensing E.P. lubricants have had no report of failures of hypoid axles in which their own brand of E.P. was used. Such experiences merely bear out our statement that only a small portion of the time do passenger cars operate under maximum load conditions.

Manufacturers of hypoid gears have proven conclusively that ordinary E.P. lubricants will not prevent failure of hypoid gears when operated under maximum load conditions. Contrary to a freely expressed belief, ordinary E.P. lubricants will not suffice for the refill, even after the axle has been thoroughly run in with special hypoid lubricants for several thousand miles.

BRANDING HYPOID LUBRICANTS

On account of opposed requirements of hypoid gear lubricants, as compared with those for other uses, most interested companies have concluded that hypoid lubricants should not be designated as E.P., or extreme-pressure lubricants. Lubricants of the E.P. type, not active enough chemically to protect hypoid gears under maximum conditions, have been widely distributed for several years. Since the general practice has been to call them E.P. lubricants it is felt that this practice should continue. They are now referred to as "mild type" E.P. lubricants.

To prevent confusion in dispensing and to discourage the belief that hypoid and E.P. lubricants are interchangeable, it is the usual practice not

New style of screen for removing cuttings from drilling mud in the Oklahoma City field. A paddle-wheel in the mud stream furnishes power to rotate the circular screen by means of a chain-driven sprocket. Inside of the screen is an angle iron in the form of a spiral which pushes the cuttings out of the screen at the farther end thus removing them from the mud

*Presented before Northwest Petroleum Association meeting at Bismark, N. Dak., January 19, 1937.

to designate hypoid lubricants as extreme-pressure products. It is believed this policy will prevent the introduction of hypoid lubricants into gear sets where they might be objectionable and to impress on the oil station operator that hypoid gears require a special lubricant.

Mild E.P. lubricants should have a general purpose application, and should be acceptable to replace ordinary mineral oil lubricants in any automotive installation without introducing a service hazard. They should be resistant to oxidation, and must not be abrasive or lapping in action. They should be noncorrosive either in the presence or absence of water, to all materials used in ordinary machine construction.

Extreme-pressure properties of mild E.P. lubricants should not become dissipated through age, or exposure, to heat or cold. They should be permanent. They should not increase foaming tendencies and should contain no solid matter to settle out. They should possess no water solubility tendency and should exert no noticeable chemical action on the metals used in automotive gear box construction.

Hypoid lubricants have no other application than the protection of hypoid gears. The best combination so far known, which will, beyond question, adequately protect hypoid gears when operated under maximum load conditions, in 1937 cars, is the lead, active-sulfur, ultra-powerful type lubricant.

Lubricants specially designed to meet hypoid requirements are at times subjected to high temperatures and may become oxidized. For this reason, at 5,000 to 6,000 miles the axle housing should be completely drained, washed out with flushing oil, and refilled with fresh lubricant. Do not use kerosene as a flushing medium.

Hypoid lubricants contain sulfur in so active a form they must blacken a polished copper strip in a few minutes, at room temperature. For this reason they must not be used in steering gears, transmissions, worm-drive rear axles, or in any other equipment having parts made of copper alloys that are not designed for use with these lubricants. Hypoid gears fail in service through scoring or scuffing. An examination of scored gear teeth will disclose that small particles from the teeth of one gear are fused or welded to the other. Successful hypoid lubricants therefore must be a combination of lubricating oil and an inhibitor against welding. When sufficiently high temperatures have been generated through the action of the gear teeth sliding upon each other the lead and sulfur react chemically and form a flux which prevents the welding action called scoring, or scuffing.

RECOMMENDATION FOR HYPOID LUBRICANTS

Motor car manufacturers, appreciating the necessity of closely guarding the quality of hypoid lubricants, have found it necessary to violate their firmly established policy of not approving any specific product. At present, they are using three methods to assure correct lubrication, of hypoid rear axles.

(1) Insistence on car owner obtaining hypoid lubricant refill from car dealer only, on penalty of cancellation of warranty for failure to do this.

(2) Issuance of lists of approved brands of hypoid lubricants for use in the makers' axles.

(3) Instructing owners to use only powerful-type lubricants specially designed for hypoid gears and leaving it up to the oil company to provide such a product.

As a guide to assist the oil industry in producing satisfactory hypoid lubricants, car makers have issued tentative specifications outlining routine laboratory requirements, also suggesting tolerances on chemical additions and stating the severe physical tests on S.A.E. test machine that must be met.

There are very few S.A.E. lubricant testers in existence. Much work has been done in correlating actual road experience with hypoid lubricants with results on that tester. This experience has demonstrated thoroughly that lubricants not meeting S.A.E. test machine requirements as at present laid down, are almost certain to fail in service. A lubricant failing to pass the test on the S.A.E. tester will not be given further consideration.

It must not be thought that the mere mixing

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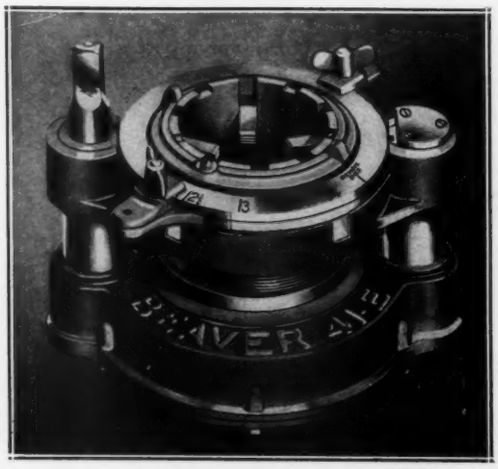

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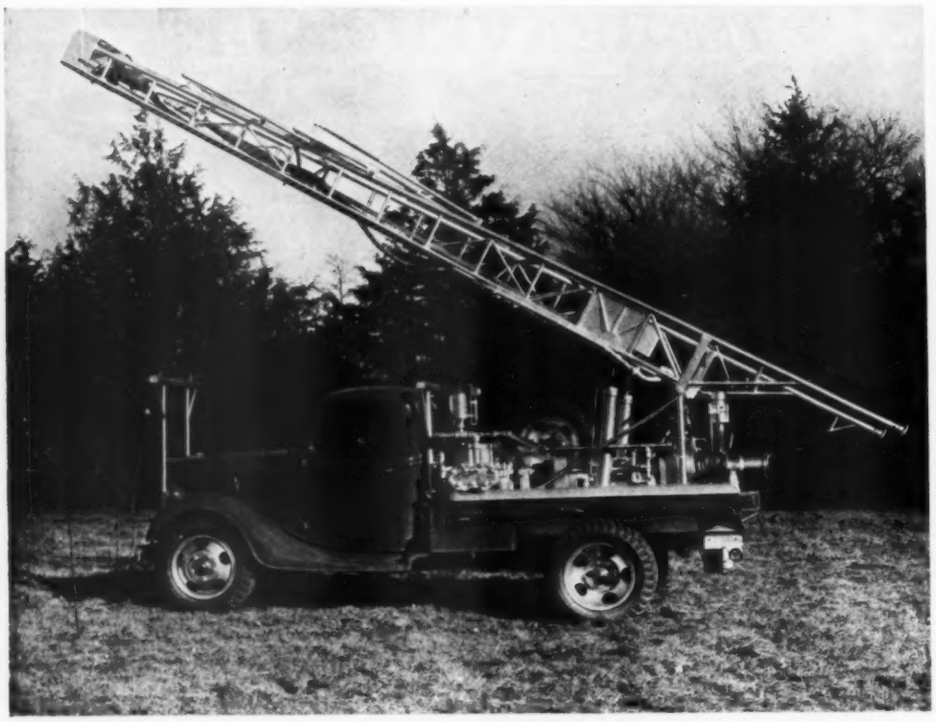

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of certain amounts of sulfur and some form of lead soap with mineral oil is all that is necessary to produce a hypoid lubricant. If these two elements are not combined under carefully controlled conditions the lubricant is easily ruined in the course of manufacture. Many mineral oils may not be used as they will not hold one, or both, of the added elements in permanent solution. The selection of the proper form of lead soap is of the greatest importance, else separation of lead in drums will occur. The chemical form in which the sulfur is present determines whether it will be abrasive in action or not. It can be in such chemical combination as to be ineffective as an extreme pressure agent.

In conclusion, the time is here when normal mineral oils should not be dispensed for steering gears, transmissions, or rear axles, of passenger cars. Mild E.P. lubricants having the properties previously mentioned should be used exclusively. The only exceptions are: (1) Over-drive transmissions. (2) Hypoid axles.

For over-drive transmissions, the manufacturers recommend only straight mineral oils falling in the classification for motor oils. They know that poorly made, mild E.P. lubricants that oxidize readily and contain insoluble matter, will make their device inoperable. When well-made, permanent, oxidation-resistant, mild-type, E.P. lubricants are in more general distribution by the smaller oil companies, this restriction will doubtless be removed.

For hypoid axles, only specially designed and carefully made ultra-powerful, lead, active-sulfur lubricants, complying in every respect with leading car makers recommendations must be used.

Several large oil companies now confine their gear lubricants to mild type E.P. lubricants and hypoid lubricants. It is expected that this practice will increase steadily until normal mineral oil lubricants will no longer be used for automotive gears.

Revision of Stoddard Solvent Specifications Recommended

F. W. Reynolds, division of trade standards of the Bureau of Standards, has distributed to producers, distributors and users of stoddard solvent a recommended revision entitled "Recommended Revision of CS3-28." In presenting this recommendation Mr. Reynolds stated the standard has been rearranged and rewritten to agree with latest A.S.T.M. methods of test and the only changes of significance refer to requirements on distillation characteristics. A temperature of 375° F. for 90 per cent distillation is substituted for 50 per cent distillation at 350° F., to insure quick drying. A requirement covering maximum residue, not heretofore specified, has been inserted.

Some of the general requirements of this commercial solvent, a grade of petroleum distillate of low inflammability used in dry cleaning were given as follows:

1. Appearance shall be clear and free from suspended matter and undissolved water.
2. Color shall be water white or not darker than 21 by Saybolt chrimometer.
3. Odor shall be free from rancid and objectional odors; shall be typical of a "sweet" refined naphtha.
4. Corrosive properties—A clean copper strip shall show not more than extremely slight discoloration when submerged in the solvent for three hours at 212° F.
5. Doctor test—A negative or "sweet" result shall be obtained by testing with sodium plumbite (doctor solution).
6. Sulfuric acid absorption test—Not more than 5 per cent of the solvent shall be absorbed by concentrated C.P. sulfuric acid when tested in accordance with the A.S.T.M. D86-35 test.
7. Flashpoint—The flashpoint shall not be lower than 100° F. when tested in accordance with the tag closed tester (A.S.T.M. D56-36).
8. Endpoint shall not be higher than 410° F.
9. Residue—When a sample is distilled in accordance with A.S.T.M. D86-35, the residue shall not be more than 1.5 per cent.

Sherman, Michigan, Crude Oil Analyzed by Bureau of Mines

The crude oil produced from the discovery well in the new field of Sherman Township, Isabella County, Michigan, has been analyzed by the U. S. Bureau of Mines, and found to be a paraffin base oil. The lighter fractions include 40 per cent of "gasoline and naphtha" and 20 per cent of kerosene distillate. The laboratory analysis (Hempel method) indicates that these fractions are more paraffinic than the corresponding fractions from the oils produced in the other Michigan fields with the possible exception of the oil from the Trenton lime horizon in Monroe County. It is interesting to note that the lighter fractions of this oil are more paraffinic than the corresponding fractions from the crude oils produced from the Cabin Creek, West Virginia, and the Rodessa, Louisiana, fields. The remaining distillates consisting of 23 per cent of gas oil and heavier distillates give indications that this Michigan oil would yield about the same type of commercial products as may be obtained from the Rodessa crude oil.

Although this well, No. 1 Pure-Embrey, in section 34-15n-6w, is classed as the discovery well of a new field, it is only about 1 mile north of the Broomfield gas field. In 1934, a well, the No. 2 Willie, in section 4-14n-6w, that had been producing gas from the Michigan Stray sand, was deepened to the Monroe formation. A showing of oil was found but the well was abandoned late in 1935. A deep test in section 3-14n-6w, later proved to be a dry hole. The extent of this newly-found area producing oil from a stratum considered to be in the Monroe formation has not yet been determined. This oil was collected from tanks at the flowing well, which is producing from a depth of about 3,614 feet, after acidizing and plugging back from 3,619 feet.

The approximate summary of the analysis of the crude oil is as follows:

	Per cent	Sp. gr.	°A.P.I.	Viscosity
Light gasoline	13.2	0.667	80.6	.....
Total gasoline and naphtha	40.0	0.719	65.3	.....
Kerosene distillate	20.0	0.792	47.2	.....
Gas oil	10.1	0.830	39.0	.....
Nonviscous lubricating distillate	8.8	0.841–0.861	36.8–32.8	50–100
Medium lubricating distillate	4.7	0.861–0.871	32.8–31.0	100–200
Viscous lubricating distillate	....	.....	....	Above 200
Residuum	14 3	0.902	25.4	.....
Distillation loss	2.1	.....	....	.....

The detailed analysis of the crude oil is given below:

GENERAL CHARACTERISTICS

Specific gravity	0.788
Per cent sulfur	0.40
Saybolt Universal viscosity at 77° F., seconds	36
Saybolt Universal viscosity at 100° F., seconds	35
A.P.I. gravity	48.1
Pourpoint below, °F.	5
Color, N.P.A., No.	5

DISTILLATION, BUREAU OF MINES HEMPEL METHOD

Dry distillation Barometer 752 mm.
First drop: 24° C. (75° F.)

Temp., °C.—	Per cent	°A.P.I. of cut	Viscosity at 100° F.	Cloud test °F.
Up to 50	3.7	91.7	...	...
50- 75	3.7	84.5	...	...
75-100	5.8	71.8	...	...
100-125	7.2	64.5	...	...
125-150	6.3	60.0	...	...
150-175	6.2	56.4	...	...
175-200	7-1	53)5	...	...
200-225	6.2	50.9	...	...
225-250	6.1	47.4	...	...
250-275	7.7	44.3	...	...

Vacuum distillation at 40 mm.

Up to 200	5.0	40.2	39	15
200-225	4.4	38.2	45	30
225-250	4.5	35.8	53	45
250-275	4.0	34.0	77	60
275-300	5.7	32.1	115	75

	Per cent
Carbon residue of residuum	2 2
Carbon residue of crude	0.3

Lion Lubricating Plant Completed

EL DORADO, Ark.—Lion Oil Co. has announced the completion of its new lubricant plant in its refinery here. It is to be placed in operation at once and will produce approximately 12,000 bbls. of lubricants monthly. Crude from the Smackover field will be used.

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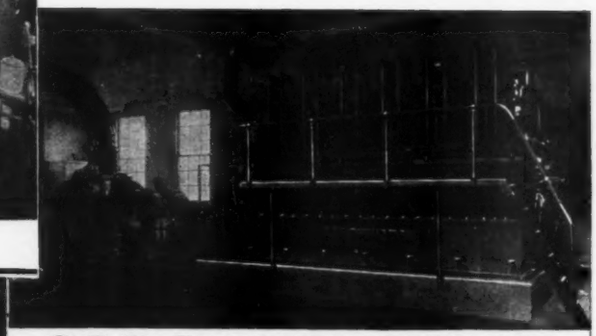

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GE7-4

Properties of Crudes Produced Outside of the United States

By GUSTAV EGLOFF
Universal Oil Products Co.

Following are the analyses and properties of representative crude oils produced in Iraq, China and Italy; the Hempel distillation and properties of fractions and Engler distillation being given for each representative crude. Analyses of crudes produced in other foreign countries appeared in the December 31, 1936, January 14 and 21, 1937, issues of The Oil and Gas Journal. Properties and analyses of other foreign crudes will appear in following issues.

IRAQ

The total daily refining capacity of Iraq is 2,500 bbls. in two refineries with no cracking installations. Iraq crudes vary in 400° F. endpoint gasoline content with 12.1 per cent in the Qaiyarah high sulfur crude to 36 per cent in another Iraq crude. The octane ratings vary from 38 in the former to 45 in the latter. The crude from Kirkuk is similar in its constitution to the Mid-Continent crude of North America; its treatment is comparable to that of Persian crude. The analyses shown in tables give the characteristics of three Iraq crudes. The bulk of the Iraq crude production, totaling approximately 85,000 bbls. daily, goes to European countries.

(Continued on Next Page)

IRAQ CRUDE OILS

Source of crude:	Baba Gurgur	Kirkuk
Sp. gr. at	0.850	0.846
Paraffin, per cent	About 2	.....
Sulfur, per cent	1.8	2
Residuum, per cent	.....	71.2
Loss, per cent	.....	2.0
Distillation yield, per cent at 375.6° F	.....	26.8

Engler Distillation

	Per cent
Gasoline	31
Light oil	15
Heavy oil	6
Gas oil	8
Light paraffin	14
Heavy paraffin	13
Residuum	12

Properties of Gasoline Fraction

Sp. gr. at	0.724
Sulfur, per cent	0.08
Octane number	50

100 cc. A.S.T.M. Distillation

	°F.
Initial B.P.	86.0
Per cent distilled over:	
10	159.8
20	185.0
30	204.8
40	222.8
50	244.4
60	260.6
70	280.4
80	300.2
90	320.0
Endpoint	375.8

Properties of Residuum

Sp. gr. at	0.899
Sulfur, per cent	2.4
Cold test, °F.	0.4

Properties of 55.7% Residuum

Sp. gr. at	0.935
Sulfur, per cent	3.26
Flashpoint (Pensky-Martens), °F.	260.6
Viscosity at 122° F.	62
Cold test, °F.	60.8
Residuum, per cent	0.2

Engler Distillation

	°F.
Initial B.P.	496.4
Per cent distilled over:	
5	564.8
10	588.2
20	674.6
30	669.2
40	680.0
50	696.2
60	705.2
70	717.8
80	728.6
Endpoint	.....
Per cent coke, by weight	8
Per cent over at 572° F.	6.5

Properties of Topped Crude

Run, days:	23	23
Sp. gr. at 50° F.	0.920	0.935
Viscosity (Engler), at 122° F.	4.52	8.75
Viscosity (Engler), at 572° F.	19.5	11.0
	—Per cent—	
Light distillates	16.1	12.9
Heavy distillates	17.8	17.3
Total distillates (383° F. endpoint)	33.9	30.2
Residuum (sp. gr. 1.0)	56.7	59.0
Gas and loss	9.4	10.8

Gasoline Fraction

	No. 1	No. 2	No. 3
	%	%	%
Acid content	1.94	5.8	3.2
Loss through dissolution in sulfuric acid	2.7	3.5	3.0
Loss through polymerization	1.4	2.4	1.8
Loss through redistillation	1.5	1.5	1.4
Total loss	5.6	7.4	6.2
Sp. gr.	0.737	0.739	0.738
Color, ° Saybolt	26	29	30
Doctor test	Neg.	Neg.	Neg.
Gum (Copper Dish), per cent (without inhibitor)	11	8	6
Gum (Copper Dish), per cent (with 0.025 UOP inhibitor)	5	5	2
Sulfur, per cent	0.21	0.12	0.12
Octane number	65	64	64

100 cc. A.S.T.M. Distillation

	°F.	°F.	°F.
Initial B.P.	105.8	140.0	105.8
Per cent distilled over:			
5	123.8	132.8	132.8
10	143.6	150.8	152.6
20	172.4	186.8	183.2
35	210.2	215.6	217.4
50	242.6	249.8	248.0
90	327.2	336.2	339.8
Endpint	363.2	379.4	375.8
Per cent distillate	97	98	96
Residuum, per cent	1	1.0	1.0
Loss, per cent	2	1.0	3.0

IRAQ CRUDE OIL

Fractions removed—	None	250° F. gasoline	300° F. gasoline	350° F. gasoline	400° F. gasoline	250-400°F. naphtha	Topped crude (after removal of 400° F. gasoline)	350-530° F. kerosene	400-530° F. kerosene	Reduced crude (after removal of 530° F. kerosene)	Gas oil	Crude residue (after removal of gas oil)
Hempel Distillation												
Yields, vol. per cent of crude	100.0	14.6	21.0	28.5	36.0	21.4	63.8	19.6	12.1	51.6	18.0	33.6
Properties of Fractions												
Gravity, °A.P.I.	35.6	80.1	72.3	66.9	62.0	53.0	23.9	45.0	43.2	20.7	33.9	14.5
Sp. gr. at 60° F.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sulfur, per cent	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Octane No. (C.F.R. Motor Method)	.....	65.6	58.4	52.0	44.9	35.0	.....	.....	.....	.....	.....	.....
Flashpoint (Cleveland O. C.), °F.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Firepoint (Cleveland O. C.), °F.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Flashpoint (Pensky-Martens), °F.	.....	.....	.....	.....	.....	.....	230	.....	.....	290	.....	425
Viscosity (Universal), sec. at 100° F.	.....	.....	.....	.....	.....	.....	170	.....	.....	412	.....	.....
Viscosity (Universal), sec. at 122° F.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Viscosity (Furol), sec. at 77° F.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Viscosity (Furol), sec. at 122° F.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	186
B.S.&W., per cent	.....	.....	.....	.....	.....	.....	Trace	.....	.....	Trace	.....	0.1
Cold test, °F	.....	.....	.....	.....	.....	.....	10	.....	.....	25	25	35
Characterization factor	.....	12.7	12.4	12.4	12.15	11.95	11.70	11.9	11.9	11.6	11.8	11.45
Engler Distillation												
Initial B.P.	°F. 120	°F. 96	°F. 100	°F. 94	°F. 106	°F. 247	°F. 450	°F. 362	°F. 398	°F. 530	°F. 527	°F. 653
Per cent distilled over:												
5	188	112	123	127	132	263	477	370	410	565	540	684
10	226	118	134	146	148	270	498	376	417	579	548	691
20	305	125	154	170	183	279	533	385	425	611	560	693
30	375	136	167	191	212	287	581	393	431	644	569	Cracking
40	548	155	196	232	262	309	676	412	444	676	587	.....
70	684	179	225	269	306	335	708	437	461	694	609	.....
90	742	211	260	310	354	371	728	476	491	717	642	749
Endpoint	750	250	299	351	398	413	728	523	530	717	698	.....
Total per cent over	96.0	98.0	98.0	97.5	98.0	99.0	92.5	99.0	99.0	92.0	99.0	89.0
Per cent bottoms	.....	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.....	1.0	.....
Per cent coke by weight	3.9	.....	.....	.....	.....	.....	7.6	.....	.....	8.1	.....	10.9
Per cent loss	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Per cent at 250° F.	13.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Per cent at 300° F.	19.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Per cent at 400° F.	33.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Per cent at 572° F.	54.0	.....	.....	.....	.....	.....	28.0	37.0	Trace	7.5	34.0	.....

DEPARTMENT OF GEOGRAPHY
UNIVERSITY OF NEBRASKA

IRAQ (QAIYARAH—HIGH SULFUR) CRUDE OILS

Fractions removed—	None	325° F. gasoline	350° F. gasoline	400° F. gasoline	Kerosene	Gas oil	Topped crude (after removal of 325° F. gasoline)	Reduced crude (after removal of 350° F. gasoline)	Asphalt residue (after removal of 350° F. gasoline-kerosene and gas oil)	Topped crude (after removal of 400° F. gasoline)
Hempel Distillation										
Yields, vol. per cent of crude	100.0	6.1	7.3	12.1	12.3	21.0	92.6	79.0	58.0	86.6
Properties of Fractions										
Gravity, °A.P.I.	14.4	63.3	61.0	55.3	42.6	27.0	12.5	9.0	3.5	10.6
Sp. gr. at 60° F.	0.9698	0.7264	0.7351	0.7575	0.8128	0.8928	0.9826	1.0071	1.0481	0.9958
Sulfur, per cent	7.31	0.51	0.62	0.82	1.60	3.40	6.45	6.72	7.64	6.46
Octane No. (C.F.R. Motor Method)	.....	45	43	38	.....	.....	.....	.....	.....	.....
Flashpoint (Cleveland O. C.), °F.	140	.....	.....	.....	.....	.....	.....	.....	.....	.....
Firepoint (Cleveland O. C.), °F.	150	.....	.....	.....	.....	.....	.....	.....	.....	.....
Flashpoint (Pensky-Martens), °F.	Below 70	.....	.....	.....	.....	.....	.....	280	.....	240
Viscosity (Universal), sec. at 100° F.	1,850	.....	.....	.....	.....	.....	.....	.....	.....	.....
Viscosity (Universal), sec. at 122° F.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Viscosity (Furol), sec. at 122° F.	95	.....	.....	.....	.....	.....	.....	1,752	.....	525
Viscosity (Furol), sec. at 210° F.	.....	.....	.....	.....	.....	.....	.....	76.8	.....	49.4
B.S.&W., per cent	Trace	.....	.....	.....	.....	.....	Trace	.....	.....	Trace
Cold test, °F.	5	.....	.....	.....	.....	.....	.....	65	.....	35
Characterization factor	11.3	12.2	12.1	11.95	11.75	11.4	.....	10.8	.....	11.3
Engler Distillation										
Initial B.P.	°F. 188	°F. 120	°F. 95	°F. 134	°F. 314	°F. 501	°F. 380	°F. 536	°F.	°F. 470
Per cent distilled over:										
5	302	160	161	190	363	523	430	582	.....	500
10	355	186	182	211	373	547	479	603	.....	530
20	524	204	208	241	386	568	572	626	.....	603
30	616	220	225	264	398	583	625	644	.....	621
50	668	245	256	300	421	611	676	666	.....	664
70	700	270	282	330	447	642	704	685	.....	710
90	.....	300	318	368	487	684	.....	.....	.....	.....
Endpoint	706	326	352	400	526	716	718	685	.....	710
Total per cent over	84.0	98.5	98.0	98.5	98.5	99.0	84.5	78.5	.....	83.0
Per cent bottoms	.....	1.0	1.0	1.0	1.5	1.0	.....	.....	.....	.....
Per cent coke by weight	15.0	.....	.....	.....	.....	.....	15.4	20.9	.....	16.1
Per cent loss	.....	0.5	1.0	0.5	.....	.....	.....	.....	.....	.....
Per cent at 400° F.	13.5	.....	.....	.....	.....	.....	2.0	.....	.....	.....
Per cent at 410° F.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Per cent at 572° F.	24.4	.....	.....	.....	.....	.....	20.0	4.0	.....	15.0
Penetration at 77° F. (25° C.)	.....	.....	.....	.....	.....	.....	.....	.....	120	.....
Ductility at 77° F. (25° C.), cm.	.....	.....	.....	.....	.....	.....	.....	.....	125+	.....

CRUDE OILS PRODUCED IN CHINA

Oil has been known in China since ancient times when it was used as a medicine for curing skin diseases. Commercial development of the oil deposits was attempted in 1901 at Yenchang which has been the only field developed. Other deposits are known since seepages are abundant. Analyses of different crudes show gasoline contents from 0.54 to 70.5 per cent of the crudes. There are no refineries in China.

Location—	Color	Sp. gr.	Gasoline: Per cent	Gasoline: Sp. gr.	Kerosene: Per cent	Kerosene: Sp. gr.	Fuel oil: Per cent	Fuel oil: Sp. gr.	Fraction above 572° F.: Per cent	Fraction above 572° F.: Sp. gr.
Szefu Well, Tseliuching, Szechuan	Dark green (R)	0.8394	17.68	0.7575	26.00	0.8041	9.00	0.8317	49.00	0.8861
Tungshun Well, Tseliuching, Szechuan	Green (R)	0.8660	6.41	0.7996	49.82	0.8180	17.00	0.8006	25.23	0.8530
Tungchang Well, Tseliuching, Szechuan	Dark green (R)	0.8585	3.75	0.7830	22.25	0.8144	10.50	0.8351	64.20	0.9064
Tis Fu Well, Tseliuching, Szechuan	Dark green (R)	0.8748	5.00	0.7920	29.33	0.8148	.....	.....	64.95	0.8983
Hunglung, Kungching, Szechuan	Reddish (T)	0.8310	0.54	.....	33.23	0.8084	.....	.....	68.40	0.8360
Hunglung, Kungching, Szechuan	Reddish (T)	0.8372	0.54	.....	35.10	0.8130	.....	.....	66.50	0.8340
Luchuan Tsechung, Szechuan	Brownish (R)	0.8393	16.02	0.7558	29.68	0.8238	.....	.....	55.00	0.8669
Luchuan Tsechung, Szechuan	Light brown (T)	0.7750	70.50	0.7553	14.50	0.7972	.....	.....	13.50	0.8564
Hoerkan Loshan, Szechuan	Dark brown (R)	0.8340	20.00	0.7543	40.66	0.8051	.....	.....	40.00	0.8780
Yenpo, Pahsien, Szechuan	Black (R)	0.9134	.....	.....	.....	.....	13.68	0.8420	85.60	0.9135
Tsaichinpao, Yumen, Kansu	Black (R)	0.8961	16.55	0.7976	.....	.....	38.40	0.8440	44.80	0.9378
Yenchang, Shensi	Black (R)	0.8840	10.70	0.7892	.....	.....	22.65	0.8360	66.60	0.9066
Yenchang, Shensi, Well No. 101	Dark green	0.841	11.6	0.681	16.6	0.787	.....	.....	.....	.....
Yungping, Shensi, Well No. 201	Dark green	0.851	12.2	0.701	16.7	0.793	.....	.....	.....	.....

(R)—Reflected light. (T)—Transmitted light.

ITALIAN CRUDE OIL

Two fields in Italy, the Valezza and Salsomaggiore, produce crudes of high gasoline-kerosene content, the former yielding 70 per cent gasoline-kerosene, and the latter yielding 60 per cent. Sicilian and Fiume crudes are very heavy, having A.P.I. gravities of 13.9 and 19.9, respectively and cold tests below zero.

There are nine refineries in Italy having a daily capacity of 34,000 bbls., and cracking capacities of 10,900 bbls. The annual production of crude is 500,000 bbls. against an annual consumption of 18,000,000 bbls.

	No. 1						No. 2				
	Crude	Spirit	200-270° C. kerosene	270-350° C. cracking stock	Residue A	Residue B	Crude	374° F. E.P. gasoline	Kerosene	Topped crude	Reduced crude
Yields, vol. per cent of crude	100.0	Trace	8.0	42.0	50.0		100.0	20.4	10.6	79.1	68.6
Gravity, °A.P.I.	13.9	.....	.....	.....	.975	.998	19.9	61.8	37.0	11.6	.....
Sp. gravity at 60° F	.....	.....	.0885	0 926	.....	.....	0.9346	0.7320	0.8398	0.9888	.....
Color, deg. Saybolt	.....	.....	.....	.....	.....	.....	.....	23	.....	.....	.....
Cu dish gum, mg./100 cc.	.....	.....	.....	.....	.....	.....	.....	7	.....	.....	.....
Doctor test	.....	.....	.....	.....	.....	.....	.....	Neg.	.....	.....	.....
Sulfur, per cent	2.27	.....	.....	.....	.....	.....	3 84	0.20	1.15	4.15	.....
Octane number	.....	.....	.....	.....	.....	.....	.....	57	.....	.....	.....
Flash, C.O.C., °F.	250	.....	.....	.....	355	475	.....	.....	116	225	.....
Fire, C.O.C., °F.	285	.....	.....	.....	.....	.....	.....	.....	.....	270	.....
Flash, Pensky-Martens, °F.	220	.....	103	155	.....	.....	.....	.....	.....	205	.....
Vis. at 122° F., sec.	.....	.....	.....	.....	3000	.....	.....	.....	.....	.....	.....
Vis. furol at 77° F., sec.	62	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vis. furol at 122° F., sec.	.....	.....	.....	.....	.....	.....	.....	.....	.....	174	.....
B.s.&w., per cent	0.1	.....	.....	.....	.....	.....	0.1	.....	.....	0.3	.....
Pourpoint, °F.	.....	.....	.....	.....	35	55–60	.....	.....	.....	.....	.....
Cold test, °F.	Below 0	.....	.....	.....	.....	.....	Below 0	.....	.....	10	.....
100 cc. A.S.T.M. Distillation											
I.B.P., °F.	414	.....	90	118	108		122	102	346	440	.....
5 per cent	474	.....	...	...	...		210	143	378	506	.....
10 per cent	515	.....	200	253	223		278	273	388	534	.....
20 per cent	579	.....	210	270	244		385	190	401	602	.....
30 per cent	618	.....	219	282	255		521	...	...	646	.....
40 per cent	644	.....	...	...	...		...	...	...	...	.....
50 per cent	676	.....	234	307	280		670	251	431	692	.....
60 per cent	696	.....	...	...	...		...	...	...	...	.....
70 per cent	716	.....	254	330	306		689	...	...	715	.....
80 per cent	736	.....	...	...	...		...	...	...	...	.....
90 per cent	754	.....	293	372	...		...	329	494	...	.....
E.P., °F.	760	.....	337	398	...		...	374	535	...	.....
Per cent over	94.5	.....	99.0	99.0	...		88.0	98.5	99.0	87 5	.....
Per cent bottoms	.....	.....	1.0	1.0	20.0		.....	1.0	1.0	.....	.....
Per cent coke by weight	6.1	.....	...	...	.....		11.1	...	12.4	.....	.....
Per cent loss	.....	.....	...	...	.....		.....	0.5	.....	.....	.....
Per cent at 400° F.	.....	.....	...	...	.....		21.5	...	.....	.....	.....
Per cent at 437° F.	2.0	.....	...	...	.....		24.0	...	.....	.....	.....
Per cent at 572° F.	18.5	.....	...	...	.....		34.0	...	15.5	.....	.....

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Eliminating Danger of Accident in Changing from Gas- to Air-Lift

We have been operating a gas-lift plant using gas in the compressors for flowing the well and now that our gas supply is about exhausted we desire to know if it will be safe to change to air. We have been advised that this is a dangerous step to take and desire to secure as much information as possible on the proper handling of the situation when making such a change. We are also interested in any general comments on the relative merits of the two gases for producing oil.—F. M. P.

A gas-lift plant that is to be changed to operate on compressed air, or one that has been operating on air and is to be converted to gas, first should be drained of all gas or air in the system by opening all escape valves to the atmosphere. The compressor may be turned over a few times to force the gas or air out of its cylinders, but it must not be run long because of danger of an explosive mixture getting into the cylinders. The operator then should make a check at the blowoff, also at the intake. When he is certain that only one class of matter (gas or air) remains the compressor can be started in operation in the usual way.

Air was used as the agent for compression and injection into the wells when this method of oil recovery first was adopted. The greatest advantage of air for lifting is the unchanging atmospheric pressure at the intake of the compressor.

When air is used, however, there is danger of explosion if mineral oil lubrication is employed in the compression cylinders. This danger is small; nevertheless, it is present.

The air-lift is wasteful because of the fact that when some of the gas is diverted to the air through the riser pipe from the separator, as must be done when air is injected into the wells, all gasoline content therein is lost. Heavy laden gas or vapor will also settle to the ground, thus presenting additional hazards.

If gas is used for lift work there is a tendency for it to pick up some of the light ends of the crude oil, and this is especially true of dry gas. This process of robbing the crude of part of its light and volatile fractions tends to weather it, and it is therefore more stable when it is stored in the stock tanks on the lease.

When air is used some portion of the lighter ends of the crude oil are absorbed and a vapor is formed. This vapor must be discharged to the atmosphere and cannot be used in recycling.

In using gas it is the usual practice for the enriched gas from the well to be treated in a gasoline plant and the natural gasoline extracted. This cannot be done when air is used.

The reason air is more dangerous is readily understood when it is realized that a mixture composed of approximately 15 per cent gas and 85 per cent air is explosive, and in a station compressing air it is possible for this proportion of gas to be present either from vaporized lubricating oil or from faulty auxiliary gas-line connections to field scrubbers when pulling air through the scrubber instead of direct intakes to the compressors.

On the other hand, if the station is operating on natural gas it would be necessary to draw into the system from some source 85 per cent air to make an explosive mixture.

Most explosions have been in plants compressing air. Safety in compressing air can be increased by the use of vegetable oil, which emits no combustible vapors, for lubrication, but this practice has caused excessive valve trouble in some plants and abnormal lubrication costs in others.

This problem in lubrication can be solved by engineers versed in the subject and there should be no more danger from the use of air in lift stations than there is in compressing air for any other operation. However, it is necessary to take these precautions and for that reason the possibilities of danger are explained here.

Input meters located near the lift station in a common meter house are a safety measure, for the operator then may determine by inspection if proper conditions as specified by the production engineer are being maintained. It is well to have a sufficient number of electric lights, enclosed in vapor-proof globes and with all switches located outside of the compressor room, so that examination of the meters can be made by night as well as during the day.

A check valve should be placed in the input line near the well to prevent oil from filling the line and backing up into the station during any shutdown period. Also a check valve should be placed in the gravitational oil line between the separator and the lease stock tanks. This will prevent air from being drawn into the system through the separator in the event of the float valve on the separator failing to operate and, after emptying the tanks, permitting air to enter the separator through them because the level of the fluid in the tank is so low that the end of the line between separator and tank is open.

Relief valves on the separators or traps are necessary for release of excessive starting pressure, while a check valve in the relief line from the separator will prevent air from being pulled into the lift station from that source.

Summing up, it may be stated that there is no objection to using air in a lift system if proper precautions are taken to prevent a mixture of 15 per cent gas and 85 per cent air from entering the compressor cylinders. This gas may come from one of two sources, lubricating oil that is unsuited for this purpose or from external connections to the atmosphere through which air may be drawn.

Were it not for the extraction of gasoline and of furnishing fuel gas for the field, most engineers probably would prefer to use air. They point out that installation costs are lower, vacuum pipes from the well to the plant can be omitted, aftercoolers are dispensed with, etc., and there is a more dependable source of supply than when using gas.

Bibliography on Water-Flooding Articles

Have you any record of the experience of operators employing hydraulic pressure for increasing production of oil from wells which have ceased to produce profitably on pump?—E. J. F.

You are referred to the annual index in the January 14 issue of The Oil and Gas Journal. On page 125 of that issue you will find listed under the subtitle "Water-Flooding" 15 articles on that subject published in The Oil and Gas Journal during 1936, as we assume you refer to water-flooding when you state "employing hydraulic pressure for increasing production of oil." You will also find other articles on the subject in older issues of the Journal. If you do not have access to files of The Oil and Gas Journal you can secure copies through the Circulation Department of this company, at Tulsa.

Siphon in Gas Well Would Not Work

In a shale gas well about 650 feet deep the operators desired to remove about 4 bbls. of salt water daily along with from 60,000 to 70,000 feet of gas the well normally made. The hole was not cased below a short surface string. A string of 2-inch tubing was run to near the bottom of the hole and provided with packer. Inside of this 2-inch flow string a string of three-fourths inch macaroni tubing was then run. The 2-inch tubing was sealed around this three-fourths inch string at the well head. A hole had been drilled in the three-fourths inch tubing before it was run and this hole was at about 350 feet from the surface when the pipe was in place. The syphon did not work and the owner of the well checked and found the fluid level inside the 2-inch tubing was within 100 feet of the surface. The three-fourths inch tubing was then withdrawn and a second hole drilled in it just about fluid level when the string was rerun inside the 2-inch. The shut-in pressure in the top of the 2-inch tubing was from 150 to 180 pounds. After drilling the second hole in the macaroni string the well produced the water along with the gas. Why did this syphon refuse to work when one hole was drilled in the macaroni string but did work when two holes had been drilled in it?—K. K. K.

This is rather a long involved question and some essential facts are missing but the following explanation is offered based upon gas-lift principles.

Assuming that after the well was tubed with the two strings, the shut-in pressure on the 2-inch tubing was 180 pounds. This indicates there must have been approximately (180 ÷ .43) feet of gas in the upper part of the 2-inch tubing to balance 410 feet of water. Then the gas was low enough in the annular space between three-quarters and 2-inch tubing to enter the first hole at about 350 feet below the surface and could enter that hole and work upward through the column of water and clear the inner tubing.

However, it is possible that when the string of macaroni tubing was first run the shut-in pressure was not 180 pounds but much lower, for example as low as 50 pounds. In that case the gas was not under sufficient pressure to start, "kick-off" the head of water, but when the upper hole was drilled the pressure needed was only about 43 pounds per square inch to lift the water 100 feet and the well "kicked-off" and lightened the column so that the gas could enter the lower hole and keep the macaroni string clear of water by flowing it up and out along with the gas.

The two holes are called "boosters" in gas-lift practice and have been used for years, especially where air is used to lift water. They are wasteful in so far as the volume of gas used to lift a given quantity of fluid, but in this instance, since the well was a gas well, it was desirable to produce all the gas possible, waste of energy in removing the water was immaterial.

There has been some discussion as to whether "jet" or "booster" holes are more effective if drilled at an angle through the pipe wall. Tests have indicated there is no advantage in drilling angle holes and a paper on this subject was prepared by Davis and Weidner of the University of Wisconsin several years ago and published in bulletin form by the university press. The problem studied in particular had to do with foot pieces in which the air was supposed to be broken into fine bubbles.

For a rather complete discussion of siphons for handling water in gas wells you are referred to an article by C. P. Parsons published in The Oil and Gas Journal May 10, 1928.

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph.D., Technical Editor

Cetane Preferred Material for Ignition Quality Test

I find the ignition quality of a fuel oil sometimes referred to in terms of cetane numbers and by other authorities as cetene numbers. Do these differences in spelling mean anything? An explanation will be appreciated if there is any difference in the meaning.—H. K.

The original work of Boerlage and Broeze, in 1932, described a method for determining the ignition quality of diesel oils in which engine runs were made and the unknown oil compared with a test fuel composed of cetene and alphamethylnaphthalene. The percentage of cetene matching the fuel being expressed as the "Cetene Number." Recent investigations have shown that the results were more reliable when made with the related compound cetane. The test conditions are the same, the results being expressed according to the test compound.

Cetane is hexadecane, a saturated hydrocarbon having the formula $C_{16}H_{34}$. Cetene is hexadecene, an unsaturated hydrocarbon of the olefin series having the formula $C_{16}H_{32}$.

Reference: Boerlage and Broeze, Ignition Quality of Diesel Fuels as Expressed in Cetene Numbers, J.S.A.E., 31, Sec. 1, 282, 1932.

Dilution Ratio or Tolerance Test for Nitrocellulose Solutions

One of the specifications on solvents is "Tolerance." The test for this requires a nitrocellulose base solution. What are the specifications for the chemicals used in this test and what is the procedure? What is "Cotton solution second?"—H. B.

Nitrocellulose is graded according to the substances in which it dissolves to form a clear solution for use in the preparation of lacquers. Important solvents for this use, include—acetone, ethyl, butyl and amyl acetates, several alcohols, and ethers. The naphthas obtained from the most volatile fractions from petroleum are excellent diluents. The quantity of naphtha that a nitrocellulose solution will permit to be present, tolerated, is the dilution ratio.

There is no standard procedure for making the so-called "tolerance test," consequently data on tolerance, or as it is more frequently termed "dilution ratio," do not always agree. The test consists in making up a nitrocellulose solution in the particular solvent, at 77° F., and adding a diluent slowly until the first signs of precipitation of nitrocellulose occur. With a diluent such as toluol the endpoint is fairly sharp and is observed by the appearance of lumps on the side of the flask as it is shaken. The granular material which appears is transparent and one must look fairly close to see it, but with some little experience the endpoint is easily determined and can be duplicated rather exactly. With a petroleum diluent the endpoint is not so sharp, the first sign of precipitation being a cloudy appearance in the solution which gradually becomes a little worse and then the formation of granular insoluble lumps occurs. Do not consider the first appearance of haze as an endpoint, but continue until an actual precipitation occurs.

This is an outline of the test: Prepare a solution of 12.2 per cent, by weight, of soluble nitrocellulose, dried at 50° C. to constant weight, and 87.8 per cent normal butyl acetate, by weight. The normal butyl acetate should conform to the requirements of the standard specifications for normal butyl acetate (88 to 92 per cent grade) of the American Society for Testing Materials, designation D 303. To 250 cc. of this in a sample bottle, or a small Erlenmeyer, add chemically pure toluol in small quantities from a burette, shaking well after each addition. The first permanent separation of soluble nitrocellulose is observed as the dilution value and is expressed as a percentage by volume of the formula.

There are two properties which serve to distinguish the several types of nitrocellulose; these are solubility and viscosity. The viscosity is the time, in seconds, required for a specified ball to fall a definite distance through the liquid being tested while contained in a glass tube of stated uniform diameter and held at a definite temperature. When the viscosity observations become very low in seconds, it is convenient to convert seconds to centipoises by the relation 1 second is equivalent to 377 centipoises.

Half-second nitrocellulose has a viscosity of 1.2 poises. The formula of a test solution for one-half second material is:

	Per cent by weight
Half-second nitrocellulose	20
No. 1 CD denatured ethyl alcohol	20
Ethyl acetate	16
Toluol	44

This may be called a base solution.

SPECIFICATIONS

Ethyl acetate:	
Ester value, per cent	85-88
Specific gravity	0.887 to 0.893
Distillation:	
90 per cent between, °C.	70-80
Dry point, °C.	90

No. 1 CD ethyl alcohol:
Pure alcohol containing not less than 92.3 per cent by weight C_2H_5OH and denatured by approved federal formula.

Toluol:	
Specific gravity	0.864 to 0.874
Boiling point, °C.	±2 from 110.4

Shall be noncorrosive.

Reference: Manual of Amer. Soc. Test. Mats., Comte. D-1, Preservative Coatings for Structural Materials.

SPECIFICATIONS

PETROLEUM COKE

Petroleum coke having a wide variety of uses may be purchased under close limitations (for carbon electrodes) or very liberal (for industrial fuel). An important item when intended for fuel is the ash content and fusing point.

	Per cent	
	Close	Liberal
Specific gravity	1.2	1.8
Cubic foot (true)	50 lbs.	.....
Moisture	0.4	2.0
Fixed carbon	92.4	86.0
Volatile matter	7.0	10.0
Sulfur	0.6	2.0
Soluble salts	.5	.....
Ash	0.7	2.0
B.t.u.	15,500	15,000
Fusing point of ash, °F.	1,450	2,000

The material arranged here is a composite of several specifications that have been used by the trade during the past 10 years.

Reference: C. B. Swanson, Petroleum Coke, U. S. Bureau of Mines, Economic Paper 9, 1930.

Parachor of Light Motor Fuels

Could you tell me what is a parachor as applied to gasoline?—N. E. C.

Numerous efforts have been made to evolve some scheme whereby it may be possible to find the octane value of a motor fuel by analysis or some physical property from other than actual motor tests.

According to Sugden, parachor signifies comparative volume. The elements relating to volume include molecular weight, densities of liquid and saturated vapor, and surface tension. It is expressed by

$$P = \frac{m}{D-d}.n^{1/4}$$

where m is molecular weight, D the density of liquid, d the density of saturated vapor, and n surface tension, all at uniform temperature.

The equation is based on a relation according to which the surface tension of an associated liquid is proportional to the fourth power of the difference between the densities of liquid and vapor. A comparison of the parachors reflects, approximately, a comparison of molar volumes at temperatures, when the liquids have the same surface tension. Based on the fact that the parachor is an additive constant for saturated compounds, it may be used for interpreting chemical constitution and therefore some distinctive property, such as antiknock value as expressed by octane value.

Heinze and Marder have arranged a chart in which octane numbers of fuels are plotted as abscissas and their parachors as ordinates. An approximately linear dependence is indicated. For a given value of the parachor, the lower the boiling index of a gasoline the better its antiknock properties. When the boiling index is lowered 1° C., octane number is increased about 0.3 unit.

When determining the octane number of a gasoline it is necessary to first find, very accurately, specific gravity, boiling index and surface tension: the corresponding octane number for the 110° boiling index is obtained from a chart, given in the reference.

The final actual octane value is found according to octane number $= ON_{110} +$ (110-boiling index) 0.3, where ON_{110} is the number from the chart and the boiling index is that of the sample. Examples are:

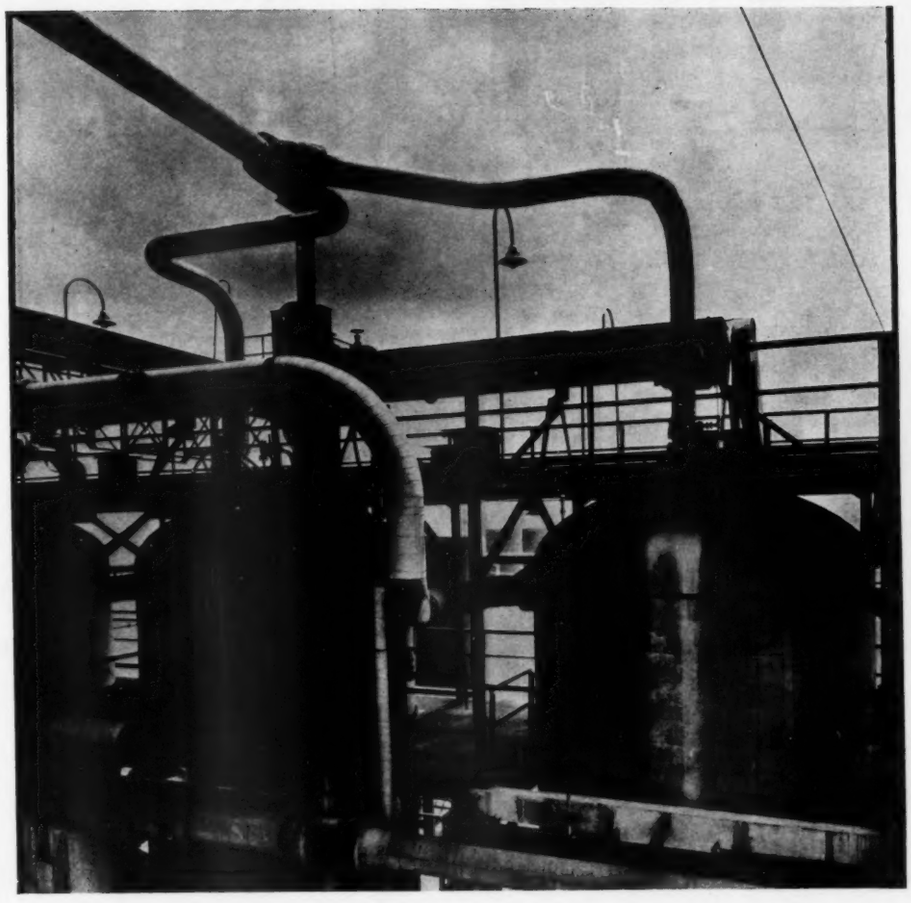
Gasoline—	Sp. gr. at 20° C.	Surface tension	Parachor	Boil. index	C.F.R. Oct. No.	Parachor Oct. No.
Natural ...	0.7218	21.25	2.974	104.2	52	53
Cracked ...	0.7284	21.20	2.946	103 5	65	66

References: Sugden, J. Chem. Soc., 125, 1,177, 1924. Heinze and Marder, Laboratory Method for Determination of Octane Number of Light Motor Fuels, Angw. Chemie, 48, 335, 1935, and same 776. See also Library Bulletin of Abstracts, 10, 105, 1935; 11, 10, 1936.

Normal Octane and Iso-octane

What is the difference between ordinary octane and the antiknock octane?—F. J.

There are several possible arrangements of the carbons and hydrogens making up a compound containing eight—hence the name octane—carbon atoms. Of these there are two of knock interest, normal octane in which the carbon atoms form a continuous open chain, and iso-octane, in which there are five carbons in a row, with two CH_3 groups attached to the second carbon and another to the fourth; from the left in both instances. Normal octane has an octane rating of zero and the iso-octane rates 100 in antiknock value.



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IN GRAY CLAY TREATING UNITS NOW OPERATING

. . . clay life ranges from 1000 barrels to 30,000 barrels per ton of fullers earth.

This wide variation is due to the differences in the oil treated and specifications to be met.

One factor remains constant—GRAY CLAY TREATING produces at low cost, a high grade antiknock gasoline.

THE GRAY PROCESSES CORPORATION

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TRADITION

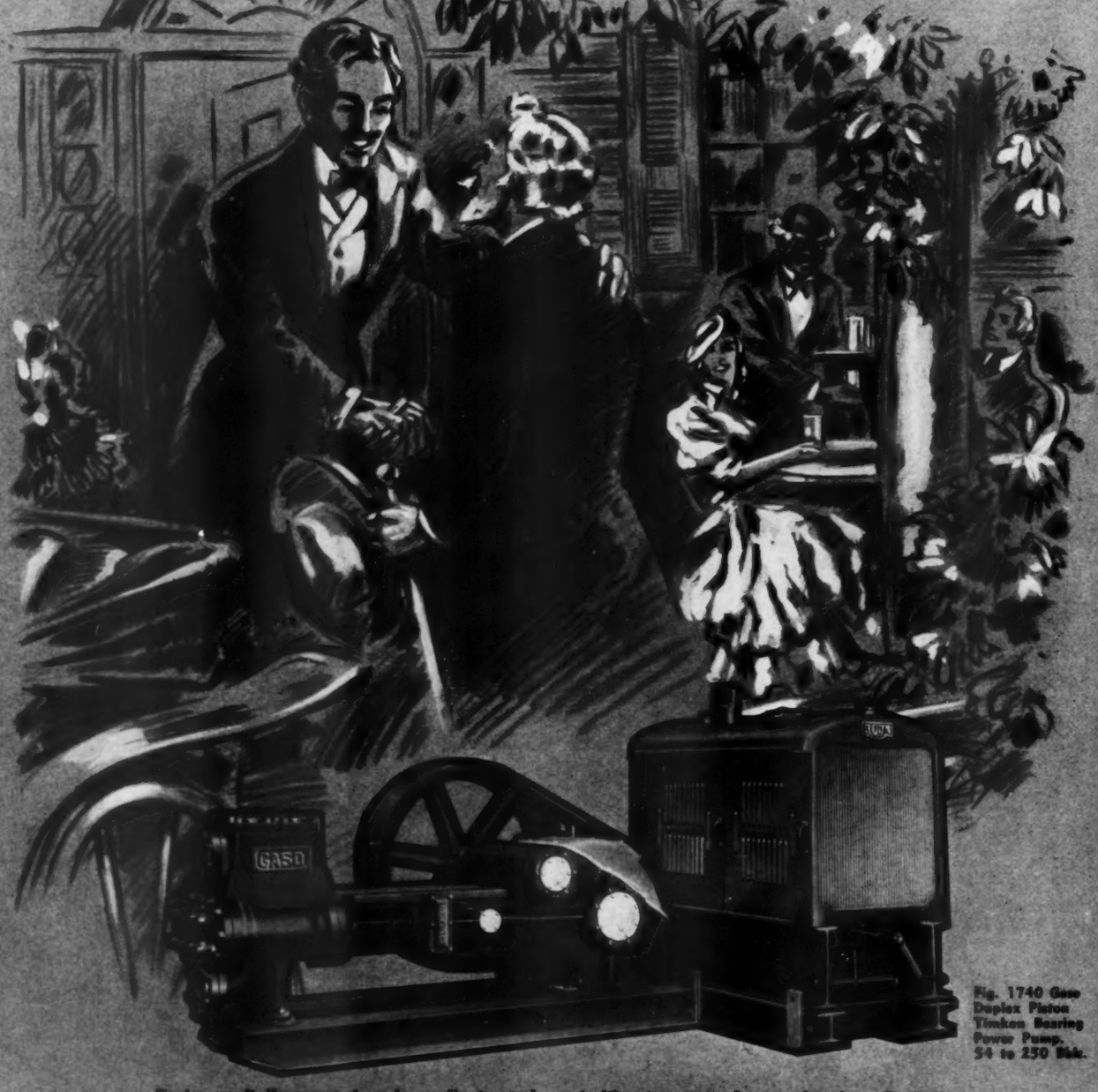


Fig. 1740 Gaso Duplex Piston Timken Bearing Power Pump. 54 to 250 Bbl.

To be cordially greeted and royally treated in the Old South is no occasion for surprise. Gracious living is a Southern tradition.

To observe a Gaso Pump giving faithful service years beyond normal pump "expectancy" is likewise not to be wondered at. In building such pumps, Gaso is continuing a tradition established at the time the company was founded....Gaso Pump & Burner Mfg. Co., Tulsa, Okla. Export Office: 149 Broadway, New York.

Complete Gaso Condensed Catalog, in 1937 Composite Catalog

GASO PUMPS
for every oil industry need

FIELD OPERATIONS

Summarizing the Week's Developments

Blizzards in the northern Rocky Mountain area and floods in the Central West district affected completed work last week, but the total of new wells in the United States was increased over the record of the previous week.

Two wildcats in Lea County, New Mexico, were giving indications of more productive spots in that big territory.

KANSAS

The first wildcat to open a pool in Kansas in 1937 was completed in northeastern Rush County, adding a large area to development between the Otis gas and oil field on the south and the Gorham-Russell district of Russell County to the north. Twenty-four new oil wells were completed, with two large producers in the Trapp field in Russell County and three in the Rice County sector of the Silica district.

TEXAS

The Five Corners gas field in Wharton County, Coastal Texas, was converted into an oil pool, making the third oil discovery on the big Pierce Estate property. The Lockridge field in Brazoria County was extended 2,000 feet east. In Southwest Texas a pool was opened in Nueces County about 12 miles southwest of Corpus Christi. The Saxet field was extended and a new pay sand was found in the Clara Driscoll field. In the Laredo area indications of oil production were shown in a test in the Labbe gas field.

The second Delaware sand pool in Loving County, West Texas, producing nonsulfur or "sweet" crude is assured, the discovery well starting at 269 bbls. per day of 40 gravity oil. A 735-bbl. well in northern Winkler County may be a connecting link between a Lea County, New Mexico, pool and Winkler County's most northerly pool. In the Eastern Texas area a deep test with Trinity sand as the objective is to be drilled on the eastern flank of the Van field in Van Zandt County. It is estimated that 40,000 bbls. of oil per day produced in the East Texas field is commanding a premium of one or another kind, or a bonus of a stipulated sum per well.

OKLAHOMA

Two deep wildcats were announced for Stephens County, Oklahoma, and a third deep test is proposed. A deep test was announced for Grady County. A Beckham County well was showing oil and may open a producing area in the far western part of the state. An active leasing campaign was reported in many sections of the state, especially in northwestern and southwestern counties. Completions of the week included seven wells at Fitts, three at Oklahoma City and five Senora sand wells in southwestern Okfuskee County.

LOUISIANA-TEXAS

Rodessa in Louisiana and Texas is steadily approaching the 100,000-bbl. mark in daily production, and unless affected by tighter curtailment should reach that figure in February. An important Marion County test which was drilled to find a further Rodessa extension was showing unfavorably. In southern Louisiana indications of a new pool are given in a test in Terrebone Parish.

MICHIGAN

The new Sherman Township field in Isabella County, Michigan, added two wells, one good for 810 bbls. and the other for 375 bbls. initially. Production in the state showed an increase.

Completions in All Fields

(Week Ending January 23, 1937)

	Oil	Gas	Dry	Total	1937 total comp. to date	1936 total comp. to date
Penna. Grade Fields	35	12	6	53	217	173
Lima Field	0	0	0	0	6	7
Central Ohio	3	7	4	14	70	21
Indiana	0	2	5	7	17	18
Illinois	0	0	0	0	0	0
Michigan	4	1	4	9	58	34
Kentucky	0	0	0	0	16	18
Kansas	24	1	8	33	127	92
Oklahoma	32	1	12	45	164	177
Texas:						
North Central Texas	21	2	18	41	192	145
West Texas	33	0	5	38	145	84
Texas Panhandle	7	2	1	10	42	52
East Central Texas	12	1	0	13	51	16
East Texas	35	0	3	38	170	122
East Texas border	8	1	0	9	38	0
Gulf Coast Texas	18	0	3	21	89	58
Southwest Texas	24	1	3	28	201	122
Total Texas	158	7	33	198	928	599
North Louisiana	4	2	0	6	26	35
Gulf Coast Louisiana	2	0	3	5	35	22
Total Louisiana	6	2	3	11	61	57
Arkansas	0	0	2	2	2	10
Montana	0	0	0	0	9	10
Wyoming	0	0	0	0	9	7
Colorado	0	0	0	0	2	3
New Mexico	10	1	6	17	58	26
Utah	0	0	0	0	0	1
California	17	0	5	22	92	81
Total United States	289	34	88	411	1,836	1,334
Total previous week	265	44	91	400		
Difference	24	10	3	11		

Outstanding Fields—Highlights

(Week Ending January 23, 1937)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
Anahuac	2	5	3	1,464	146	9,787
Hastings	3	6	3	1,355	132	8,961
Loma Novia	3	5	1	50	643	15,740
Seven Sisters	3	5	3	1,210	359	8,360
Saxet Heights	2	5	2	490	199	9,265
Saxet	8	34	6	680	332	24,100
Lopez	2	7	1	440	270	6,455
East Texas	36	78	351	1,706	22,025	451,798
Talco	13	26	8	821	179	14,867
OKLAHOMA						
Oklahoma City	2	21	3	1,638	1,090	155,975
Fitts	7	62	7	3,821	591	80,600
Burbank-So. Burbank	0	4	1	403	2,164	22,800
KANSAS						
Ellis County	3	17	1	1,820	74	3,505
Reno County	6	22	3	1,795	359	18,795
Russell County	8	48	3	3,981	561	24,175
Rice County	10	43	6	5,609	678	43,065
NEW MEXICO						
Lea County	14	76	9	2,946	1,094	78,250
LOUISIANA-TEXAS						
Rodessa, La.	3	12	1	396	339	55,535
Rodessa, Tex.	2	49	8	4,382	176	38,670
Gillis, La.	2	5	1	454	55	17,837
Tepetate, La.	2	4	0	0	40	5,578
MICHIGAN						
Porter-Yost	3	6	0	0	424	12,900
Crystal-Montcalm	8	6	1	40	146	3,040

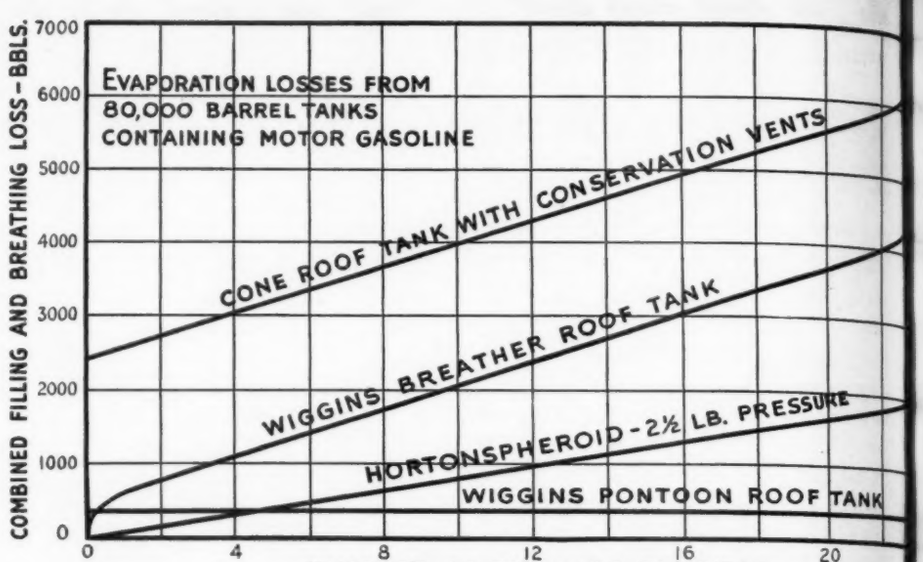
How Much Evaporation

—With the Wiggins Pontoon Roof:

THE Wiggins Pontoon Roof is especially designed for installation on tanks that are filled and emptied at frequent intervals. Referring to the accompanying chart, you will note that the efficiency of this roof is not affected by frequency of fillings. This is because the roof always floats on the surface of the oil within the tank, eliminating the vapor space. There is no place for vapor to form and be displaced through vents when the tank is filled.

The elimination of the vapor space also stops practically all breathing losses. There is no space filled with vapor to expand and contract with atmospheric temperature changes, forcing vapor out through the vents during the day and drawing in air at night.

You may note that the Wiggins Pontoon Roof referred to in the chart is for an 80,000 bbl. tank handling motor gasoline. Similar satisfactory results are obtained from installations on tanks of any size from 15 ft. in diameter up and for all grades of oil that do not boil at ordinary atmospheric temperatures.



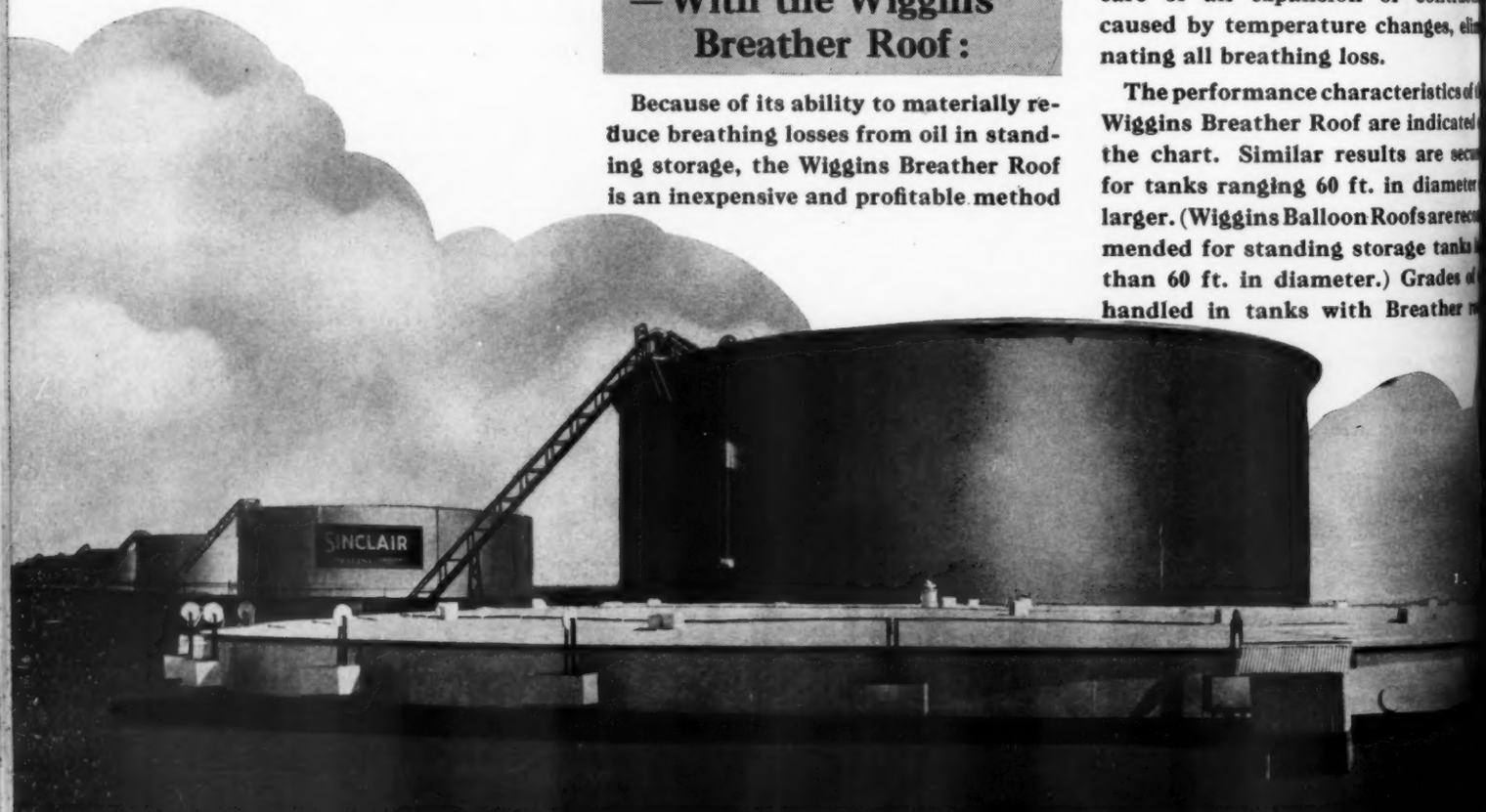
The efficiency curves plotted above are based on reports from hundreds of actual tests. They are intended to show conservative averages rather than the performance of an individual tank.

—With the Wiggins Breather Roof:

Because of its ability to materially reduce breathing losses from oil in standing storage, the Wiggins Breather Roof is an inexpensive and profitable method of preventing evaporation loss for tanks that are not filled and emptied frequently.

The Breather Roof is most effective when the tank is full. Under such conditions the volume of the vapor space is relatively small and the roof can take care of all expansion or contraction caused by temperature changes, eliminating all breathing loss.

The performance characteristics of the Wiggins Breather Roof are indicated on the chart. Similar results are secured for tanks ranging 60 ft. in diameter and larger. (Wiggins Balloon Roofs are recommended for standing storage tanks less than 60 ft. in diameter.) Grades of oil handled in tanks with Breather roofs



CHICAGO BRIDGE & IRON COMPANY

Fabricating Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.

Loss is Preventable?

range from crude in standing storage to aviation gasoline at bulk stations.

—With the Wiggins Balloon System:

The Wiggins Balloon can be used to stop vapor losses from existing tanks with gas-tight roofs in good condition. Installations can be made to serve a single tank or a group of tanks with their vapor spaces interconnected. When making such installations it is necessary to analyze all storage conditions in order to determine the balloon capacity necessary to eliminate all filling and breathing losses. Inasmuch as it is possible to balance filling and emptying the vapor storage capacity required to stop all filling losses is relatively small in systems containing a large number of tanks.

A piston type balloon is used to provide vapor storage where a capacity of 25,000 cu. ft. or less is required. For larger installations, a flexible steel balloon is used. Two large diaphragms are mounted to a shallow shell in such a manner that they flex up and down like a breather roof as the vapor flows to and from the tanks.

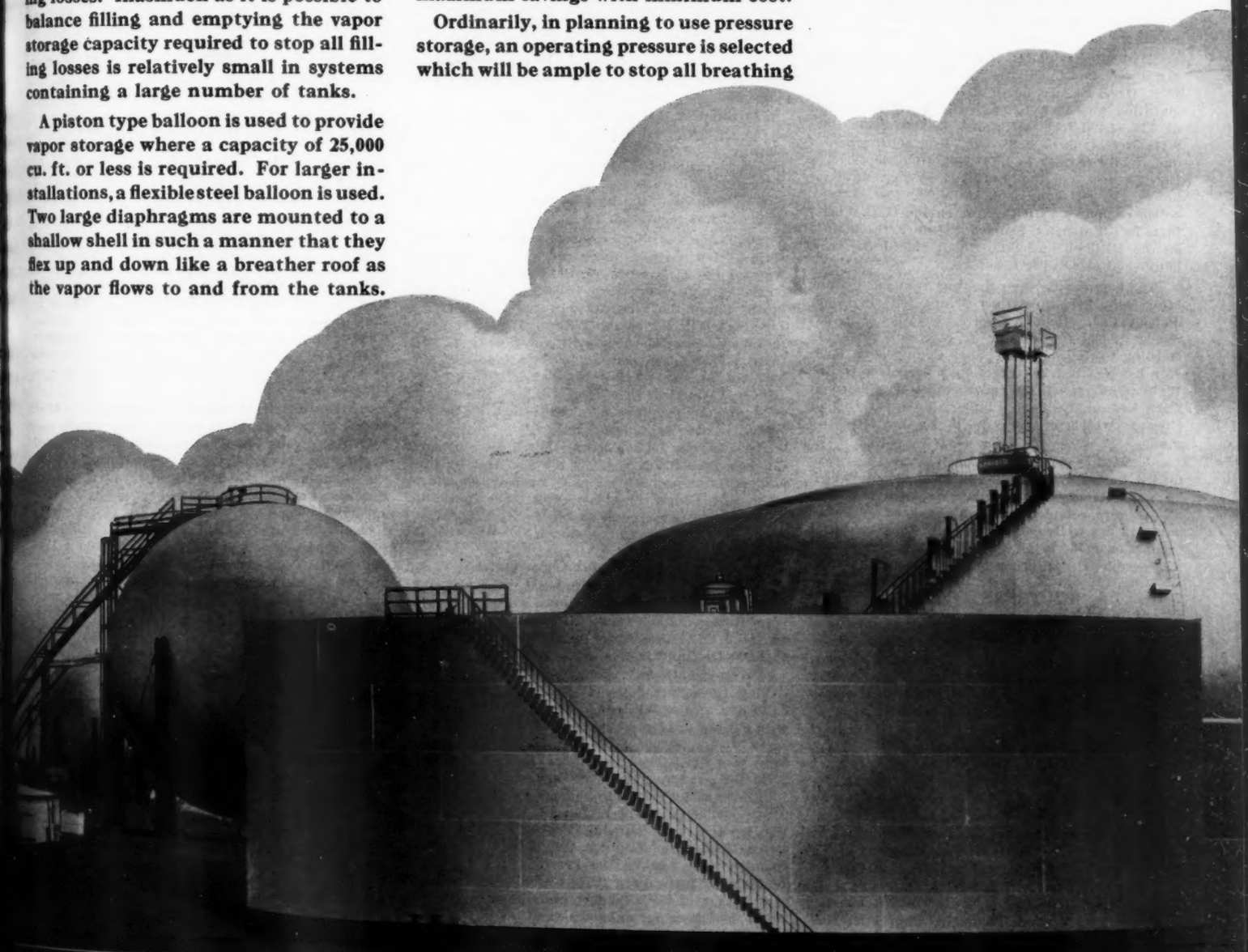
—With Hortonspheres and Hortonspheroids:

All oil products which are volatile enough to boil at atmospheric temperatures should be stored in pressure tanks. This has not always been done — due to the high cost of such structures.

With the development of the Hortonspheroid, however, entirely new possibilities have been opened up for the profitable use of pressure in handling natural gasoline and even in storing large quantities of modern high test motor fuels. At higher pressures, the Hortonsphere offers a similar combination of maximum savings with minimum cost.

Ordinarily, in planning to use pressure storage, an operating pressure is selected which will be ample to stop all breathing loss while the liquid is in standing storage. This pressure also reduces the filling loss over a wide range of operating conditions. The pressure required for any particular set of conditions is calculated from formulae or read from tables prepared for this purpose.

NOTE: In the preceding paragraphs, no reference is made to the value of savings secured. This, of course, varies with the current market price of oil being handled, but it should be definitely understood that all of the equipment mentioned here will pay for itself out of evaporation savings—often in a remarkably short period of time! Our nearest office will be glad to give you details.



DALLAS 1441 Dallas Athletic Club Bldg.
HOUSTON 2919 Main Street
TULSA 1606 Hunt Building
BIRMINGHAM 1536 North Fiftieth Street

CHICAGO 2128 Old Colony Building
DETROIT 1514 Lafayette Building
CLEVELAND 2204 Rockefeller Building
NEW YORK 3347-165 Broadway Building

PHILADELPHIA 1615-1700 Walnut St. Bldg.
BOSTON 1517 Consolidated Gas Building
SAN FRANCISCO 1054 Rialto Building
LOS ANGELES 1423 Wm. Fox Building

Eastern Field Report

By STAFF CORRESPONDENT

BURNING SPRING DEEP TEST IS DISAPPOINTMENT SO FAR

PITTSBURGH, Pa., Jan. 25.—The deep test of Glenn Roberts and others on the Roberts Oil Co. lease (L. R. and J. A. Roberts) on the Burning Springs anticline in Burning Springs district, Wirt County, West Virginia, has reached an interesting stage though the new developments so far are disappointing. With a surface elevation of 837 feet, the Corniferous lime was placed at 4,651 feet. The top of the Oriskany sand was at 4,899 feet, and at 4,902-03 feet salt water intruded and rose 400 feet in the hole.

Running a double bailer, the water was reduced 300 feet in one and a half hours. Drilling was resumed and a very hard black formation was encountered, and then brown sand at 4,906 feet, and drilling is being continued. So far there has been no oil nor gas in the Devonian series.

The only correlation is with a well drilled some years ago, Power Oil Co. No. 5700 in Walker district, Wood County, north of this test. The surface elevation was at 1,216 feet, with Corniferous lime at 4,230-4,420 feet; Oriskany, 4,420-44 feet; lime, 4,444-52 feet; dark sand, 4,452 feet, getting lighter and finally coarser to 4,520 feet, final depth. The Roberts test on the Burning Springs anticline places the Oriskany sand at 4,062 feet, subsea, which compares with the test on the C. C. Fisher farm in Elk district, Kanawha County, the highest on the Milliken anticline, which placed the Oriskany sand at 4,073 feet, subsea.

Another outside deep test has resumed drilling after being held up with a fishing job. In Geary district, Roane County, Godfrey L. Cabot, Inc., has reached 5,632 feet on the T. F. Smith farm. In Burning Springs district, Wirt County, this operator has reached 3,900 feet in a deep test on the Walter Hoffman farm and remains shut down at 2,472 feet on the Julia Blankenship farm, east of Creston, which was scheduled for the Oriskany sand.

Routine completions for the week were retarded by heavy rainfall and local floods, which have inundated the lowlands. A total of 23 operations were completed, which consisted of 7 dry holes, 12 gas wells and 4 producers with an initial production of 54 bbls. One fair Oriskany gas well was completed and other much improved by shot.

SOUTHEAST OHIO

Reports of completions in Southeast Ohio were particularly hampered by flood conditions. Four operations were completed. In Hocking County, Ohio Fuel Gas Co. drilled a test on the Sunday Creek Coal Co. lease in the SE quarter of section 9, Ward Township, through the Clinton sand to 3,420 feet. It was dry.

In Monroe County, Gold Crown Oil & Gas Co. completed No. 4 S. C. Christy in the SE quarter of section 25, Wayne Township, in the Berea grit at 1,755 feet. It produced 4 bbls. the first day after shot.

In Muskingum County, Edward H. Everett Co. completed a test on the H. F. and Elizabeth Doyle farm in the SE quarter of Lot 4, Licking County, in the Clinton sand at 3,221 feet. It produced 45 bbls. the first day after shot. In the NE quarter of section 28, Newton Township, Ohio Fuel Gas Co. drilled on the Edward Finney farm through the Clinton sand to 3,573 feet. It was dry.

Deep Tests

The test of Natural Gas Co. of West Virginia on the Albert Ketchum farm in section 28, Madison Township, Columbiana County, a mile north of the Margaret Jenkins gas well, is drilling 40 feet in the Corniferous lime. The cave at the top of the lime has been cemented and is holding.

In Poland Township, Mahoning County, 1 mile north of Lowellsville, the deep test of Harold C. Phillips and others on the Richard and Bell Fenton farm is drilling at 2,140 feet. The Speechley sand was at 1,960-84 feet with a pocket of gas at 1,978 feet.

SOUTHWEST PENNSYLVANIA

Several of the deep tests drilling in Southwest Pennsylvania made fair progress. In South Union Township, Fayette County, the deep test of William Snee and others on the Summit Hotel property on Chestnut Ridge made 250 feet in the new hole. The depth is now 5,800 feet, and since running the new cement spray bailer three times the caving appears under control. Gas is still coming from the old hole bottomed at 6,611 feet and which joins the new hole at 4,250 feet.

In the deep test on the James McBurney farm, 2 miles south of Hickory in Mount Pleasant Township, Washington County, Norwood Johnston and others recovered the bit lost in the hole. A new hole was drilled 30 feet past the lost bit and a 2-quart shot blew the bit into the new hole, from which it was recovered.

One mile south of Prospect in Franklin Township, Butler County, the deep test of American Natural Gas Co. and T. W. Phillips Gas & Oil Co. on the Perry S. Davis farm is drilling at 2,150 feet, or the top of the First Warren sand. The test of Laughner-Wittmer on the William Wilsoman farm in Independence Township, Beaver County, is still in trouble and recementing to get a hole past the lost tools at 4,800 feet. In South Beaver Township, Beaver County, A. J. Wise, Jr., and others are ready to start spudding the deep test on the Beaver Falls Airport Corp.

In Westmoreland County, Potter Development Co. ran tools 6,731 feet in the old test on the Indiana Bank property, 12 miles west of Johnstown on Laurel Ridge. The hole was bailed out and 8-inch casing was found to be leaking. The hole was bridged over and the casing is being pulled.

Completions and Operations

Three gas wells and one dry hole were reported from Southwest Pennsylvania. In Forward Township, Butler County, Campbell & Co. drilled a test on the J. M. Miller farm through the Third sand to 1,600 feet, and it was dry.

In Greene County, Penn Ohio Oil & Gas Co. drilled through the Thirty-Foot sand topped at 3,030 feet on the William L. Funk farm, 2,000 feet west of the good producer on the J. W. Milliken farm, Center Township. The Thirty-Foot sand here was dry. The gas in the Fifty-Foot sand, 2,941 feet, gauges about 320,000 feet.

In Franklin Township, Greene County, Charles Mong completed No. 3 Lippincott at 3,270 feet in the Bayard sand, gauging 308,000 feet.

In Washington County, Mingo Oil & Gas Co. completed the test on the Preston farm in West Bethlehem Township at 2,542 feet. The Fifty-Foot sand was at 2,458-2,500 feet and the well gauges 20,000 feet from an unknown sand.

In Richhill Township, Greene County, Smith McCracken is drilling at 1,900 feet on the Willis A. Campbell farm. Manufacturers Light & Heat Co. is down 2,485 feet on the Samuel H. Smith farm. In Gilmore Township this company is drilling at 1,665 feet on the T. and J. Hoy farm, a test.

In Center Township, Greene County, Carnegie Natural Gas Co. has reached 1,440 feet on No. 2 J. W. Milliken. In Wayne Township, Myers, Hoskinson & Milliken are drilling at 2,475 feet on the D. L. Headley test.

In Carroll Township, Washington County, Mingo Oil & Gas Co. is drilling at 1,492 feet on the Adams farm. The Salt sand was at 1,160-1,210 feet; Maxon sand, 1,250-1,360 feet, with a show of gas; the Big lime was at 1,430-92 feet. The top of the Big Injun is at 1,492 feet.

In Nottingham Township, Washington County, Scott & Co. have started drilling on the Crouch farm and are at 230 feet. In Somerset Township, Victor Behm and others are drilling at 800 feet on the Hosack test.

In Amwell Township, Washington County, Union Gasoline & Oil Corp. is down 2,060 feet in No. 4 A. O. Vankirk. Manufacturers Light & Heat Co. is drilling at 2,555 feet on the J. H. Weaver farm. Penn Oil & Gas Co. is at 760 feet on the John Russell farm. J. Perrin & Co. have reached 1,635 feet on the Ramsey farm.

In South Franklin Township, Carnegie Natural Gas Co. is drilling at 1,820 feet on the Dickerson farm. In Morris Township it has reached 2,563 feet on the H. Q. Stockdale farm. A. V. Lewis & Co. are drilling at 2,720 feet on the Ivan Mankey farm.

WEST VIRGINIA

One deep test was completed in Kanawha County, West Virginia. In Elk district, United Fuel Gas Co. completed No. 4687 Henry A. Walker in the Oriskany sand, total depth 5,167 feet, gauging 6,344,000 feet. In this district the test of Columbian Carbon Co. on the Jeff Medley farm was bottomed at 5,065 feet and is good for 7,853,000 feet on completion.

In Elk district, Columbian Carbon Co. is drilling at 5,078 feet on the C. W. Vickers farm and 4,937 feet on the Ida Hughart farm. It has started drilling on the Minia F. Stauffer farm, and has rig standing on the J. C. Jordon farm. United Fuel Gas Co. is down 4,635 feet on the A. J. Bruen and others No. 4,656.

In Malden district this company is drilling at 4,952 feet in No. 4,658 George Creek Land & Mining Co. In Poca district the deepest wells drilling are United Carbon Co. tests on the L. E. Campbell farm and No. 2 Ahaz Spencer. Twenty-three wells are drilling in the Oriskany field on Coopers Creek and Campbells Creek.

Other Completions

Two small producers were completed in Ritchie County. In Clay district, William Heinselman and others completed No. 4 F. R. and Roxie Ball in the Injun sand at 1,930 feet, good for 4 bbls. In this district, Merchants Oil Co. completed a 1-bbl. pumper on the Minnie Gilpin farm in the Injun sand at 1,918 feet.

Gas Wells

In Boone County the Owens-Illinois Glass Co. completed wells No. 28 and 29 on the Peytona Coal Land Co. lease in Sherman district as gas wells. The No. 28 was bottomed at 2,508 feet, the Berea sand, and is good for 105,000 feet a day. The No. 29 is good for 243,000 feet a day from the same formation at 2,892 feet.

In Cabell County, Kentucky West Virginia Gas Co. completed the test on the S. W. Ray farm in McComas district at a total depth of 3,258 feet. Big lime was at 1,315-1,476 feet; Big Injun, 1,530-

(Continued on Page 211)

Kansas Developments

By DAL DALRYMPLE

YEAR'S FIRST POOL OPENER COMPLETED IN RUSH COUNTY

The completion of a new pool opener in Rush County was a feature of Kansas field news the past week, a period in which activity was retarded considerably because of cold weather. The discovery well was the Schoenfeld & Ketch and others No. 1 Winget, SE cor. section 15-16-16w. Location is in the northeastern corner of the county, about 6 miles west of Galatia, in Barton County, and about 8 miles north of the Otis field. It produced 797 bbls. of oil in a 24-hour test, down three and one-half hours, from total depth of 3,247 feet. It was the first discovery well to be completed in Kansas in 1937.

The new strike opens a large area to development between the Otis-Albert district to the south and the Gorham-Russell district to the north. The new Pawnee County pool opened several weeks ago also is on this trend, to the south of the Otis sector. W. M. Brimm, of the Kingman Oil Co., Tulsa, also is interested in this test with W. C. Schoenfeld, Cleveland, Okla., and William Ketch, Oklahoma City. The Texas Co., only major operator owning an offset lease, has announced location for a new test. Others owning acreage in the general vicinity include James A. Brouk, Gulf Oil Corp., Phillips Petroleum Co., National Refining Co., Ohio Oil Co., Clark C. Nye and Joe Nathan.

Daily average production in Kansas for the past week totaled 178,875 bbls., an all-time high for the state. A total of 24 oil wells, one gas well and eight dry holes were completed during the week. Completions included large producers in the Trapp and Silica pools.

Russell County

Two large producers were completed in the prolific Trapp district of southern Russell County. Coralena Oil Co. No. 16 Trapp, SE NW SE section 30-15-13w, pumped 2,003 bbls. of oil in 18 hours and 45 minutes and made potential of 2,653 bbls. of oil after acidizing with 1,000 gallons. Production was from Siliceous lime at 3,253-57 feet, total depth.

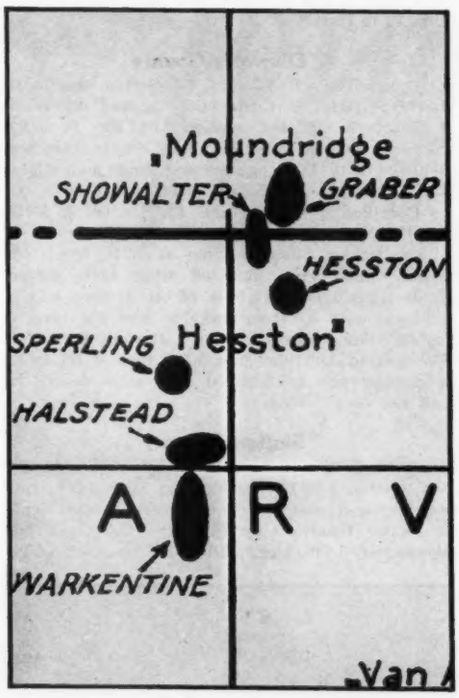
W. I. Southern, Inc., No. 3-A Sellens heirs, SE NE SW section 30-15-13w, had Siliceous lime at 3,266-70 feet, total depth, acidized with 4,000 gallons and pumped 1,250 bbls. of oil in 15 hours, making potential of 2,232 bbls. Top of Kansas City lime was 3,015 feet.

Empire Oil & Refining Co. No. 1 Crawford, NE NW SW section 2-14-15w, Gorham district, topped anhydrite at 897 feet; Kansas City, 3,051 feet; Gorham sand, 3,304 feet, and was completed at 3,308 feet, total depth. It made potential of 728 bbls. of oil.

Failure marked the efforts of Empire Oil & Refining Co. to make a producer at No. 1 Frederick, SE cor. section 18-15-11w, wildcat. It topped Topeka lime at 2,700 feet; Kansas City, 3,051 feet; Conglomerate, 3,335 feet; Siliceous lime, 3,394 feet, and it had a hole full of water at 3,401 feet, total depth, and was dry and abandoned.

First reports of new work in Russell County: Transwestern Oil Co. No. 4 Polcyn B, SW NE SE section 10-14-15w, rotary rig; National Refining Co. No. 2 East Reinhardt A, SW NW NE section 36-15-15w, location; Texas Co. No. 1 Rusch, NE NE SW section 9-14-14w, cellar.

Empire Oil & Refining Co. No. 12 Crawford, NW NW SW section 2-14-15w, topped Kansas City lime at 3,043 feet; had pay at 3,049-59 feet, total depth, and made potential of 1,215 bbls. of oil, but was not completed. Transwestern Oil Co. No. 2 Polcyn A, SE SW NE section 10-14-15w, topped Gorham sand at 3,269 feet; total depth, 3,272 feet, and pumped at the rate of 45 bbls. of oil an hour. Same operator's No. 2 Polcyn B, NE NW SE section 10-14-15w, made potential of 580 bbls. of oil at 3,270 feet; total depth, 3,272 feet. Gorham sand was topped at 3,265 feet. Ohio Oil Co. No. 3 Harbaugh, NE SE NW section 25-14-15w, had 2,000 feet of oil in the hole from Siliceous lime at 3,140-51 feet, total depth. Empire Oil & Refining Co. No. 1 Sellens, NE SW SW section 30-15-13w, had Siliceous lime at 3,272-76 feet, total depth, and oil rose 2,000 feet in the hole in 10 hours. Phillips Petroleum Co. No. 2 Hoffman, NW NE SE section 31-15-13w, had Siliceous lime at 3,344-49 feet, total depth, acidized with 4,000 gallons and was waiting on results. Shell Petroleum Corp. No. 5 Michaelis, SE SE NE section 31-15-13w, swabbed 435 bbls. of oil in 12 hours after acidizing with 2,000 gallons; total depth, 3,317 feet.



The Graber pool of southeastern McPherson County, the Warkentine pool of Harvey County, and adjacent areas are due for much field activity this year.—(E. C. Jacobson, Maps, Tulsa)

Rice County

Six completions in Rice County were divided equally between the Silica and Hauschild-Saxman areas. Largest of the new producers was Stanolind Oil & Gas Co. No. 10 Specht, SE NE SE section 6-20-10w, Silica. After acidizing with 2,000 gallons, it made potential of 2,363 bbls. of oil from Siliceous lime at 3,313-28 feet, total depth.

Bradley Oil Co. No. 2 Mitchell, SE SW SW section 32-19-10w, Silica, topped Siliceous lime at 3,297 feet; total depth, 3,299½ feet; and made potential of 2,115 bbls. Gulf Oil Corp. No. 5 Stoltz, Jr., SE SW NW section 5-20-10w, swabbed 111 bbls. of oil in four hours from Siliceous lime at 3,302-14 feet, total depth. After acidizing with 1,000 gallons, it made potential of 1,427 bbls.

In the Hauschild-Saxman district, Derby Oil Co. No. 5 Thode, SW SW SE section 8-21-7w, topped Conglomerate at 3,354 feet; water intruded at 3,385-95 feet, total depth, and it was plugged back to 3,380 feet to complete. It flowed 304 bbls. of oil, in six hours, making potential of 1,152 bbls.

L. E. Douglass and others No. 1 Patton B, NE cor. section 7-21-7w, made potential of 656 bbls. of oil and was completed at 3,357 feet, total depth. Conglomerate was topped at 3,328 feet; Chat, 3,340 feet. El Dorado Refining Co. and Dic Sage No. 1 Gossman, SW SE SW section 5-21-7w, topped Conglomerate at 3,335 feet; had pay at 3,336-42 feet; had Chat at 3,368-82 feet, total depth, swabbed 60 bbls. of oil in 24 hours and was completed.

New work in Rice County: Texas Co. and others No. 4 Schartz, SE SW SE section 33-19-10w, was a cellar; J. H. Tatlock No. 4 Berscheit A, NE SW SW section 6-20-10w, cellar; same operator's No. 6 Berscheit B, SE NW SW section 6-20-10w, cellar; Phillips Petroleum Co. No. 1 Oberle, NW NE SE section 18-20-10w, cellar.

Empire Oil & Refining Co. No. 2 Jones, NE NW NE section 17-20-9w, topped Siliceous lime at 3,274 feet, and was bottomed at 3,288 feet. After third acid treatment, it pumped 275 bbls. of oil in 18 hours, but was not completed. Cromwell & Lewis No. 1 Hannekratt, SE SE SW section 8-21-7w, topped Conglomerate at 3,347 feet; total depth, 3,366 feet, and had a hole full of oil. Pryor & Lockhart No. 1 Hannekratt, SE NE NW section 8-21-7w, topped Conglomerate at 3,341 feet; total depth, 3,361 feet, and swabbed at the rate of 5 bbls. of oil an hour.

Estimated Daily Production

Estimated daily average production of Kansas for the week ending January 23, and for the preceding week, was as follows:

	Barrels	
	Jan. 23	Jan. 16
Oxford City	2,675	2,600
Burrton	14,725	14,650
Ritz-Canton	6,150	6,100
Graber	2,775	.....
Hollow-Nikkel	3,650	3,600
Voshell	2,800	2,800
Ellsworth:		
Lorraine-South Lorraine	6,075	5,450
Other pools	1,285	1,030
Rice-Barton counties:		
Bloomer	2,700	2,210
Chase	10,100	10,095
Geneseo	2,150	2,205
Raymond	2,650	2,245
Silica	16,475	14,120
Keesling	2,100	2,310
Hauschild	3,550	2,060
Miscellaneous Rice	6,240	5,120
Miscellaneous Barton	4,784	4,045
Russell County:		
Fairport	2,455	2,295
Gorham-E. Gorham	5,610	5,040
Russell	2,845	2,480
Sullivan	4,265	3,045
Trapp	4,095	3,855
Miscellaneous Russell	4,910	4,595
Sedgwick County:		
Valley Center	1,310	1,295
Greenwich	1,295	1,320
Robbins	1,190	1,170
Miscellaneous Sedgwick	1,185	1,155
Ellis County	3,505	4,360
Kingman County	510	655
Stafford County	2,560	2,420
Greenwood County	9,650	9,700
Butler County	17,750	17,500
Other fields	25,056	27,500
Total Kansas	178,875	169,025

Barton County

Stanolind Oil & Gas Co. No. 1 Burmeister, NE cor. section 35-19-11w, Barton County sector of the Silica pool, topped anhydrite at 535 feet; Siliceous lime, 3,305 feet; total depth, 3,345 feet.

It had a showing of oil at 3,326-30 feet, but water intruded at 3,330 feet and it was plugged back to 3,317 feet, acidized without result, and was dry and abandoned.

D. R. Buchanan and others No. 1 J. Schartz Jr., NW NW NE section 20-19-11w, wildcat, showed water in cores at 3,425-35 feet and was dry and abandoned at 3,465 feet, total depth. Top of Siliceous lime was 3,405 feet.

Torry and Feister and others No. 1 Feist, NE NE SE section 29-18-11w, discovery well in the Feist pool, was deepened from 3,432½ feet to 3,443 feet, total depth, made potential of 282 bbls. of oil, with some water, and was recompleted.

The following new work in Barton County was reported for the first time: C. L. Price and others No. 1 Kraft, SW NW NE section 10-17-11w, wildcat, rigging up; C. B. Davis and Gulf Oil Corp. No. 8 Steckel, NE NE SW section 1-20-11w, moving in material.

Texas Co. No. 1 Peterman, NE NE SE section 13-17-11w, was waiting on results after acidizing with 3,000 gallons at 3,325 feet, total depth. It previously had made potential of 267 bbls. of oil, after treating with 1,000 gallons of acid. Gulf Oil Corp. No. 1 M. Meyer, SW SW SE section 13-20-11w, had oil in the hole at 3,311 feet, total depth, and was acidized but had not been tested.

Reno County

A trio of new wells were completed in the Burrton field, Reno County. Wilcox Oil & Gas Co. had the largest of the producers at No. 1-A Neufeldt, NW SE NW section 12-23-4w. It topped Chat at 3,285 feet; had pay at 3,479-84 feet, total depth, and made potential of 832 bbls. of oil, with 3 per cent water.

Skelly Oil Co. and others No. 3 Chesshire, SW NW SE section 3-24-4w, topped Chat at 3,276 feet, was bottomed at 3,373 feet, acidized with 4,000 gallons and made potential of 649 bbls. of oil, with 2 per cent water.

Shell Petroleum Corp. No. 4 Seedle, NW SW NW section 16-24-4w, was completed at total depth of 3,366 feet, after topping Chat at 3,283 feet. It pumped and flowed 314 bbls. of oil, with 4 per cent water; was acidized and then pumped and flowed 582 bbls. of oil and 5 per cent water in 24 hours.

New work in Reno County: Shell Petroleum Corp. No. 4 Welch A, NW NW SW section 9-24-4w, building rotary rig; same operator's No. 2 Lee, SE cor. section 10-26-9w, cellar; same operator's No. 4 F. L. Reese, C S half SW section 11-26-9w, rotary rig; same company's No. 4 M. Whipple, SE SW NE section 15-26-9w, rigging up rotary.

McPherson County

Two oil wells were completed in the Ritz-Canton area, McPherson County. W. C. McBride, Inc., No. 6 Whitright, SE NE SW section 30-19-1w, made potential of 273 bbls. of oil, with 6 per cent water. It topped Kansas City lime at 2,337 feet; had Chat, the producing horizon, at 2,945 feet, and was bottomed at 2,982 feet.

Lario Oil & Gas Co. and others No. 4 Lagree, NE NE NW section 31-19-1w, topped Chat at 2,919 feet; total depth, 2,968 feet; acidized with 5,000 gallons, and pumped 123 bbls. of oil and 21 bbls. of water in 21 hours, making potential of 196 bbls. of oil and 5 per cent water.

Phillips Petroleum Co. No. 5 Garrett, SE NE NE section 30-19-1w, an old well, was deepened from 3,419 feet to Wilcox sand at 3,447-71 feet, total depth, and was recompleted as a water disposal well.

New work in McPherson County: Hutchinson Oil & Gas Co. and others No. 1 Berg, SW SW SE section 15-20-3w, wildcat, was building rig; Dickey & Gulf Oil Corp. No. 7 Goering, SW NE SE section 17-21-1w, was moving in material.

Ellis County

The only new well completed in Ellis County was in the Bemis pool at Ryan Consolidated Corp. No. 2 Bemis B, SW SW NW section 22-11-17w. It topped Simpson formation at 3,372 feet; had Siliceous lime at 3,375-87 feet, total depth; pumped 1,820 bbls. of oil in 18 hours and 40 minutes, and made potential of 1,844 bbls. in 24 hours, down five hours.

Twin Drilling Co. No. 1 Goetz, SW SW SE section 3-14-17w, an old well, was deepened from 3,303½ feet to 3,568 feet, total depth, was shot and acidized, made potential of 653 bbls. of oil, with 25 bbls. of water, and was recompleted. Siliceous lime was topped at 3,522 feet.

New work in Ellis County: Lario Oil & Gas Co. No. 2 Marshall, NW NW SE section 36-11-18w, location; Wolf Creek Drilling Co. No. 1 Dreiling, NW NW SW section 4-12-17w, an old well being deepened, drilling at 3,355 feet.

Rush County

A pool opener was completed in Rush County at No. 1 Winget, SE cor. section 15-16-16w, wildcat. The new area has been called the Winget pool, pending action by the nomenclature committee. After treating with 5,000 gallons, the discovery well made potential of 797 bbls. of oil in 24 hours, down three and one-half hours. The oil was 39 gravity. Top of Topeka lime was 2,891 feet; Kansas City lime, the producing horizon, 3,243 feet; total depth, 3,247 feet.

G. M. Piggott and others No. 1 Maresch, C NW section 28-19-19w, another Rush County wildcat, topped anhydrite at 1,320 feet; Kansas City, 3,075 feet; Simpson, 4,159 feet; Siliceous lime, 4,165 feet; sulfur appeared in cores at 4,166-78 feet, and it was dry and abandoned at 4,225 feet, total depth.

The only new work reported in Rush County was in the newly opened Winget pool. Texas Co. was digging cellar at No. 1 Wagner, NE cor. section 22-16-16w.

Ellsworth County

Only Ellsworth County completion was in the Lorraine field, at Carter Oil Co. and others No. 1 Elizabeth, NE cor. section 34-17-9w. It topped Siliceous lime at 3,166 feet; total depth, 3,186 feet; acidized with 1,000 gallons and made potential of 1,147 bbls. of oil, with 31 bbls. of water.

Continental Oil Co. and Empire Oil & Refining Co. No. 7 Janssen B, NW SW SE section 34-17-8w, topped Siliceous lime at 3,216 feet; total depth, 3,256 feet; acidized with 4,000 gallons, made potential of 241 bbls. of oil. It then was re-acidized with 5,000 gallons, but had not been retested. Same operator's No. 8 Janssen B, NE NE SW section 34-17-8w ,had 2,700 feet of oil in the hole from pay at 3,249-50 feet, total depth, but had not been tested.

Stafford County

C. H. Lebow and others No. 1 Wolk, SE SW NW section 3-21-12w, wildcat in Stafford County, was dry and abandoned at 3,568 feet, total depth. It topped Kansas City lime at 3,205 feet; Conglomerate, 3,486 feet; Siliceous lime, 3,556 feet. No shows were reported. It was completed in second hole, having skidded rig 50 feet north when a difficult fishing job stopped work at 2,335 feet in the original hole.

Barber County

Barbara Oil Co. completed a gas well in Barber County at No. 1 Magnison, C NE section 14-33-13w. It topped Chat at 4,504 feet, drilled to 4,554 feet, total depth, and produced 7,000,000 feet of gas daily.

Osborne County

Helmerich & Payne No. 1 Hittinger, C SE SE section 2-7s-11w, wildcat in Osborne County, topped Siliceous lime at 3,930 feet, and was dry and abandoned at 4,110 feet, total depth.

Saline County

The effort of James Brouk and others to open a new pool in Saline County resulted in failure, their No. 1 Othelander, NE NW SE section 10-16-3w, wildcat, being dry and abandoned, although it at one time looked like it would be completed as a producer. It topped Mississippi lime at 2,815 feet; Viola, 3,294-3,440 feet; Wilcox sand, 3,493 feet; had a hole full of water at 3,505 feet; had Siliceous lime at 3,520-25 feet, total depth; plugged back to 3,320 feet; and 1,700 feet of oil rose in the hole in four days. It was acidized with 1,000 gallons and after a head swabbed 27 bbls. of oil and 5 bbls. of water in eight hours. It was reacidized with 4,000 gallons, pumped 15 bbls. of oil and 1 bbl. of water in four hours, pumped off, and it was abandoned.

Marion County

National Refining Co. No. 18 Reamey, NE NW NE section 20-21-4e, Marion County, topped Kansas City lime at 1,740 feet; had pay at 2,054-61 feet, total depth, and pumped 57 bbls. of oil. It was acidized with 1,500 gallons and made potential of 325 bbls., completed.

H. C. Strom No. 1 Schlennor, SE SE SW section 15-17-4, Lost Springs pool, topped Chat at 2,383 feet, was bottomed at 2,422 feet, pumped 15 bbls. of oil in 24 hours and was completed.

National Refining Co. No. 19 Reamey, SE SW SE section 17-21-4e, was a location.

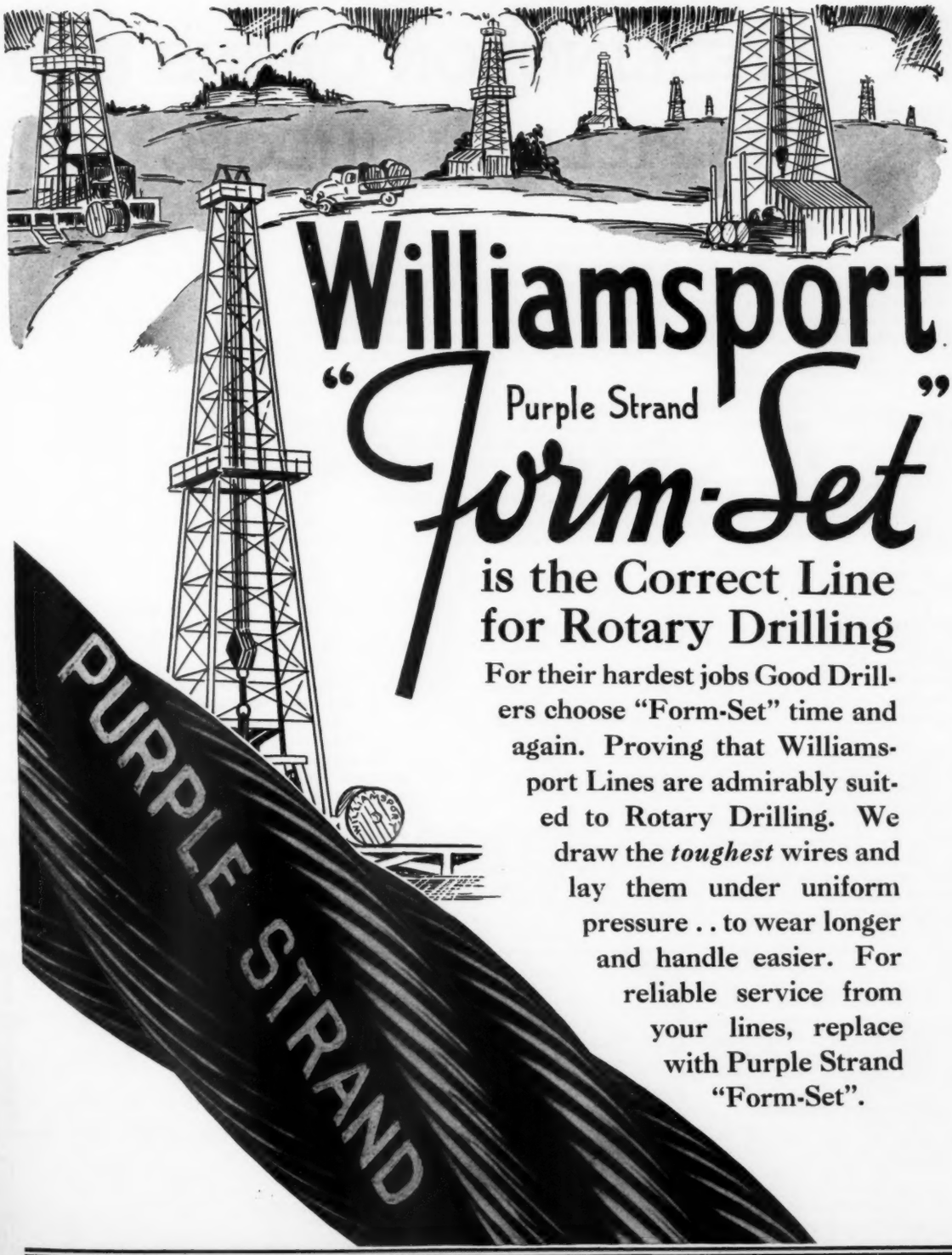
Coffey County

Two Coffey County wells were completed. Harrigan Brothers No. 2 Wiley, SE NE NE section 14-23-14, topped lime at 1,584 feet; had pay at 1,605-15 feet, total depth, acidized with 3,000 gallons and pumped 70 bbls. of oil in 24 hours.

Shaffer & Howell No. 3 Tebbens, C NW NW section 18-23-15, pumped 60 bbls. of oil in 24 hours

(Continued on Page 211)

Over in the famous old Fort Dodge country in Ford County, Kansas, this Carter Oil Co. coring crew was found near Bucklin and drawn up before the camera: C. H. Branchcomb, driller; Roy D. McAninch, geologist; Frank Eby, helper; Albert Oldham, driller; Judson Ross, helper; John Brookshier, helper; John H. Reid, driller and Arch J. McAfee, truck driver, are ranged from left to right



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Southwest Texas District

By
GEORGE WEBER

WELLINGTON OPENS UP NEW OIL FIELD IN NUECES COUNTY

HOUSTON, Tex., Jan. 25.—Opening of a new oil field in Nueces County featured a busy week in development of Southwest Texas. The new pool, yet unnamed, was discovered by Wellington Oil Co. when No. 1 Stockton came in producing pipeline oil, and continued to increase production during the latter part of the week. In the same county two other fields, Saxet and Clara Driscoll, were developed further with an appreciable extension in the former field, and a new sand brought into production in the latter. Duval County led the Laredo district in new discoveries, with a good indication of oil production in the Labbe gas field east of Seven Sisters, and show for an oil discovery in the southern part of the county near Benavides.

In Brooks County an extension was completed to the Alta Mesa field by the Standard of Texas, discoverer of the field. Other interesting developments included shows of oil in Zapata, Webb and Starr County wildcats, and the testing of a newly opened sand in the Bentonville field of Jim Wells County.

Appearing to be an oil discovery of major importance, the Wellington Oil Co. No. 1 Stockton flowed oil this week from sand at 4,700 feet. The test was begun in October by Cosner & Cosner of San Antonio, in the NE quarter of section 25, Laureles farm tracts, of the Ramon de Ynojosa Survey, about 12 miles southwest of Corpus Christi. The test, later taken over by the Wellington Oil Co. was drilled to a total depth of 7,005 feet, encountering several sands with shows of production. Casing was set at 6,250 feet and the operators proceeded to test sands which had shown for production. Although good pressures and shows for production were found in the sands, salt water was tested in some of them. The most recent perforation, made at 4,698-4,703 feet showed gas, and later began flowing pipe-line oil. The latest gauge reported on the well was 12.8 bbls. an hour through a three-eighths inch choke, with pressures increasing during the flow. The last reported casing pressure was 750 pounds. The oil, with a gravity of 25.3, will be trucked from the well until a pipe line is run to the discovery. Storage erected at the site has been filled, and preliminary plans for a line to the Baldwin field and thence to Corpus Christi are under consideration.

Importance of Discovery Indicated

The importance of the discovery is greatly enhanced by the character of the Schlumberger log taken of the hole, and of the picture of the structure. The electrical survey shows the presence of several sands with greater indications of good production than the sand which is now producing the well. In addition, a pronounced structure is evident from study of subsurface conditions in the area.

Leases and spreads in the area surrounding the well are held by a number of companies and independent operators, and further development of the new field is expected in the near future. Already two tests are being considered by operators holding offset tracts.

About 9,000 feet to the southeast of the No. 1 Stockton producer, Allen and Seaboard Oil Co. are moving in for a test on No. 2 Chapman. The wildcat, in section 38 of the Laureles farm tracts, will be watched with interest due to the discovery in the vicinity.

A southward extension to the Saxet field was indicated by a showing in the Bryant & Howell No. 1-A Kocurek. The semiwildcat, in the northeast corner of a 53-acre tract in Survey 25, 1 mile south of Clarkwood, perforated casing at 3,850-62 feet and was reported to be swabbing an appreciable quantity of oil. The test would not flow, however, and operators plan to test sand encountered at 4,139-43 feet before attempting completion of the test at 3,850 feet for a pumper. The No. 1-A Kocurek was drilled in an offset location to No. 1, which blew out and cratered in December from a total depth of 3,100 feet.

Other activity in Saxet continued, with drilling wells seeking production in the 4,400-, 4,500-, 4,800-, 5,800-, 6,300- and 6,700-foot sands which have been opened to production in the field.

Production in Another Sand

In the Clara Driscoll field another sand was brought into production as the Wellington Oil Co. No. 1-A Sevier made gas and distillate through perforations at 5,348-54 feet, with a casing pressure of 1,875 pounds and tubing working pressure of 1,950 pounds. Also in the field, the Blanco Oil Co. and Buchanan No. 1 Gandy was made distillate from a field sand, but will be carried deeper.

Completion of the Standard of Texas (California Co.) No. 1 Mestina (Jones), 1 mile west of production in the Alta Mesa field of Brooks County, not only extended that field but added a new production horizon. The test was last reported producing an estimated 300 bbls. a day of fluid, consisting of 20 to 50 per cent washwater and mud. Sand producing the test was cored at 3,670-88 feet.

In Jim Wells County, near the Nueces County border, La Jita Corp. was testing sand cored in the No. 3 Bowers at 5,688 feet. That sand was recently opened to production in the field by the same operator's No. 2 Bowers which made 125 bbls. a day of 42-gravity oil at 5,672-85 feet.

Bentonville activity has shown a gain in the past two weeks, with tests now drilling in the north and northwest sections of the producing area.

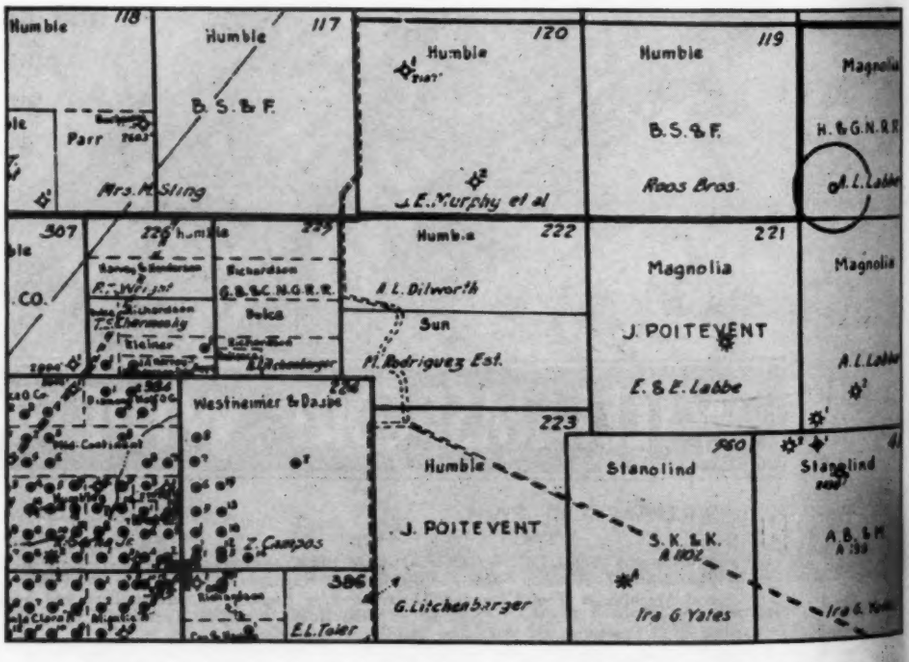
Two shows for production in Duval County wildcats were highlights of the week's operations in the Laredo district. In the northeastern section of the county, east of the Seven Sisters field, the Magnolia Petroleum Co. No. 2 Labbe ranch recovered 290 feet of pipe-line oil on a 10-minute drillstem test of sand cored at 2,904-10 feet. Top and bottom three-eighths inch chokes were used. The test, nearly a mile north of the Labbe gas field, indicates the first oil production in the area. It is about 3 miles northeast of production in the Seven Sisters field, as shown by the accompanying map. The discovery of production in that location may lead to development of considerable production, as evidenced by the growth of Loma Novia, Seven Sisters and other fields of the section.

Hiawatha Test Shows Oil

Another wildcat in the same county had production shows during the week. The Hiawatha Oil Co. No. 1 Southland Life Insurance Co., a rank wildcat about 6 miles south of the town of Benavides in the southeastern corner of the county, recovered 660 feet of high-gravity oil from a drillstem test at 5,840-67 feet. The 15-minute test was made with one-quarter inch top and three-eighths inch bottom chokes, and a working pressure of 30 pounds was recorded. Total depth of the hole is 5,867 feet. Operators plan to run casing to give the sand a production test.

A Zapata County wildcat, J. D. Long No. 1 Phelps, in a 200-acre tract in the Villa grant, cored oil sand at 1,593-97 feet and casing is being set to test the horizon.

(Continued on Page 214)



Magnolia Petroleum Co. No. 2 Labbe Ranch, shown in the large circle, has indicated the discovery of oil production in the Labbe gas field. Nearly a mile north of gas production in the field, it may constitute an important discovery.—(Porter Regenold, Maps, Corpus Christi)

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Among Gulf Coast Drilling Contractors

General rains throughout the Gulf Coast district during the past two weeks has curtailed drilling operations in many fields and several of the contractors who have contracts to drill remote wildcats are unable to start moving in due to impassable roads.

Harry L. Edwards Drilling Co. completed Kenben Oil Co. No. 3 Stewart in the Dickinson field in the 8,600-foot sand for an initial production of 674 bbls. per day through a quarter-inch choke. Contract has been received from the Coast Petroleum Co. for No. 5 Stewart, and materials will be moved in as soon as there is a break in the weather.

Edwards Drilling Co. is scheduled to move in a string of tools to the Cotton Lake field for Kirby Petroleum Co. No. 1 W. D. Haden, an outpost test situated west of a recent producer completed by the Salt Dome Oil Co. Most of the acreage in this area is divided into many ownerships and should the Kirby test result in a good producer, it will no doubt set off a drilling campaign. In the Magnet field, C. E. McDonald No. 1 Sweet, a south offset to the discovery well, has been abandoned at 5,854 feet, and the rig will be moved to the discovery well, which will be a workover for the Texas Crusader Oil Co.

Glenn H. McCarthy, who has kept his rigs busy developing his own producing holdings in the Amelia and Cotton Lake fields in Chambers and Jefferson counties, is moving one of his heavy-duty outfits to the East Erath Prospect in Vermilion Parish for the Drunella Oil Co. which will drill No. 1 Cardwell to a contract depth of 8,000 feet. McCarthy has two active rigs at the Cotton Lake field, and on a wildcat prospect in Matagorda County which is being drilled for himself.

One of the major discoveries opened in the Lower Gulf Coast district the past year, in which development is being done by contractors, is the Flour Bluff field in Nueces County, jointly controlled by the Humble Oil & Refining Co., Hurlbut and Barnsdall Oil Co. There are six active rigs in the field, operated by Cron & Gracey of Houston, and Allen & Morris and Al Buchanan, both of San Antonio. The last named contractor has several other strings of tools located in the Lopez field for the Texas Co; Bee County for Two Rivers Oil Co.; Plymouth field, for the Plymouth Oil Co. and Clara Driscoll, for Blanco & Buchanan.

H. W. Klein, for the past six years general superintendent of production for the Stanolind Oil & Gas Co., with headquarters in Tulsa, has resigned to become associated with Grady Vaughn, drilling contractor of Dallas, who recently moved two large rigs to the Silsbee field in Hardin County for the Republic Production Co. and Houston Oil Co. Mr. Vaughn and Mr. Klein will form the Big West Drilling Co. and Big West Petroleum Co. Mr. Klein will be president and general manager of the two companies and Mr. Vaughn, secretary and treasurer. General offices will be maintained in Dallas, with a branch office possibly located in Tulsa.

Of the 13 locations announced for the Texas Gulf Coast the past week, five were wildcats. In the Voete area, Hardin County, E. J. Kimball is to drill No. 1 Keettle Lumber Co.; Republic Production Co. and Houston Oil Co. made location for No. 2 Hurd in Tyler County; Texas Gulf Production Co. No. 1 Gillespie is situated in the Bammel area, Harris County, while in Wharton County Texas Co. is to drill No. 1 Gus Kluck. Along the Conroe trend in Waller County H. E. Williams is moving in for No. 1 T. C. Giddings. With the exception of the Wharton County location, all of these will be drilled by contractors.

One of the latest discoveries along the Gulf Coast in which development has stopped altogether due to weather conditions, is the Segno field in Polk County opened in December by J. K. Dorrance. This field is in the "Big Thicket" area in the southern part of the county. Most of the acreage is controlled by Gulf Oil Corp. which is expected to start an immediate drilling campaign due to the performance of the discovery well which has been flowing steadily through a small choke. It has been recommended to the Railroad Commission that a 10-acre spacing rule be put into effect, but no decision has been announced.

One of the most responsible jobs encountered by any Gulf Coast drilling contract is that being done at the Abbeville Prospect in Vermilion Parish by Loffland Bros. which is preparing to drill plug to test No. 1 O. C. Hebert for the Continental Oil Co., bottomed at the second greatest depth in the world of 12,216 feet. Special 2½-inch drillstem, required to drill the plug, arrived the past week and a test is scheduled to be made of a section of oil and gas sand topped at 12,197 feet. To a large extent, deeper exploration on the Gulf Coast hinges on the successful completion of this well as a large share of the future oil reserves is expected to come from 10,000 and 11,000 feet, recently encouraged by the completion of two commercial 10,000-foot producers in the Lafitte field in Jefferson Parish. Should the Continental well be productive, it will bring back to the Gulf Coast the record of the deepest flowing well, now held by Tide Water Oil Co.'s operations in the Ventura Avenue field in California.

Nicklos Drilling Co. is preparing to complete No. 9-A Homeseekers Development Co. and is drilling below 6,172 feet on No. 11-A Homeseekers, for the Continental Oil Co. and is rigging up at the Valentine field and drilling below 4,700 feet at the Port Barre field for the Pan American Production Co.

Rowan & Hope, of San Antonio, marked up another discovery for the Lower Gulf Coast district the past

(Continued on Page 218)

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Oklahoma Operations

By
DAL DALRYMPLE

LEASING ACTIVITY IN MANY STATE DISTRICTS REPORTED

The 1937 leasing campaign was in full swing in Oklahoma the past week, with several sections of the state receiving considerable attention from the lease men. Outstanding was the result of the lease sale at the Kiowa Indian Agency in Anadarko. Oil men paid a total bonus and premium of $105,961.96 for leases on 23,715.54 acres of Indian lands in southwestern Oklahoma. The total was divided, $73,817.53 for bonuses and $32,144.43 for advance rentals.

The heaviest buyers at the Anadarko sale were Clyde M. Becker and the Gulf Oil Corp., a leading operator in the southwestern part of the state. Other buyers were Texas Co., Magnolia Co., Continental Oil Co., Mid-Continent Petroleum Corp., Indian Territory Illuminating Oil Co., J. A. Collier, James Fransley, James L. Grizzard, Quinton Little, Pure Oil Co., Carl J. O'Hornett, Sun Oil Co., Phillips Petroleum Co., and Skelly Oil Co. Much of the acreage bought was in Caddo and Commanche counties. Carl J. O'Hornett of Tulsa paid the top price of the sale, $12 an acre for the SW section 24-4n-11w, Comanche County.

There has been considerable recent leasing in Grady County, buyers especially favoring the district east of Rush Springs and in the vicinity of the Knox field. There has been some checkerboard leasing throughout the county. Several major companies have been active buyers in this county.

The discovery of oil in Clark County, Kansas, served as a tonic for northwestern Oklahoma, with the result that leasing has been particularly active in Harper and Beaver counties, south of the new Kansas strike. The Gulf, Sinclair Prairie and Magnolia companies have been among the most active in that area. Considerable leasing also has been reported in Pottawatomie, Lincoln, Pittsburg, Coal, Hughes, Garvin and Carter counties, among other areas.

Foremost in field news was the showing of oil in a Beckham County test, and the announcement of three deep wildcats for Stephens County.

The Beckham County well was the Carter Oil Co. and others No. 1 Robertson, C SW NW section 2-9-25w. It had lime at 3,610-23 feet, swabbed 70 bbls. of oil in two hours and swabbed dry. It was then bailed and showed about two-thirds of a bailer of oil an hour, with a showing of water. Testing was continuing.

One of the deep Stephens County tests, previously announced, was the Carter Oil Co. and others No. 1 Harley, C NE NE section 24-2s-4w, south of the Milroy pool in Stephens County and west of the Fox field of Carter County. It is to go 8,200 feet or deeper. Helmerich & Payne, Inc., and associates have made location for No. 1 Graham, SW SW NE section 12-1n-5w, a 5,500-foot test south of the Doyle pool. Work is due to start by February 1. The Gulf, Shell and Carter companies were reported working on a deal to drill a deep test in the south half of section 17-3s-4w, west of the shallow Dixie pool and just north of the Jefferson County line.

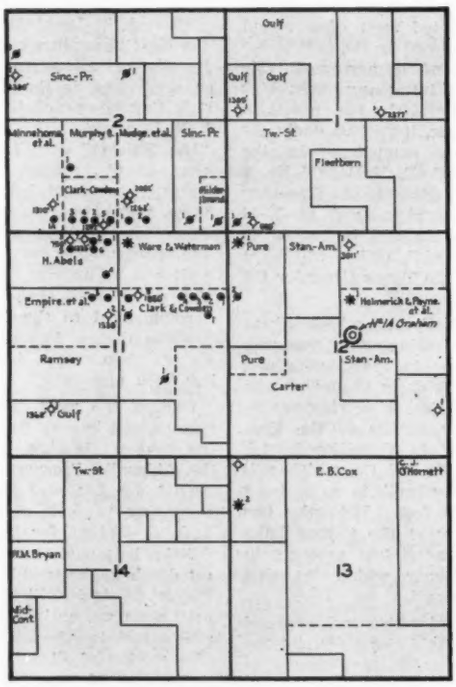
Pontotoc County

The Fitts field of Pontotoc County continued to lead the state in number of completions, the week's total including seven oil wells.

Magnolia Petroleum Co. No. 29 Metropolitan Life, C N half SW SE section 22-2n-7, topped Hunton lime at 3,510 feet; Sylvan shale, 3,910 feet; total depth, 3,916 feet. It was acidized with 10,000 gallons and flowed 490 bbls. of oil gross in one hour, making potential of 3,166 bbls.

E. H. Moore and others No. 5-A Moody, SE NE SE section 22-2-7, was acidized with 5,000 gallons and flowed 380 bbls. in two hours, making potential of 4,406 bbls. Top of Hunton lime was 3,588 feet; Sylvan, 3,980 feet; total depth, 3,983 feet. Same operators' No. 8-A McKoy, SE SW SW section 28-2-7, topped Hunton at 3,210 feet; Sylvan, 3,480 feet; Viola, 3,606 feet; Bromide, 3,870 feet; McLish, 4,085 feet; total depth, 4,330 feet. It made potential of 1,361 bbls.

Simpson-Fell Oil Co. No. 5-A Westheimer, NW SW NW section 26-2-7, was acidized with 13,000 gallons and flowed 252 bbls. of oil gross in one hour through tubing, making potential of 5,154 bbls. Top of Hunton lime was 3,300 feet; Sylvan, 3,658 feet, total depth.



One of three deep tests projected for Stephens County this year is Helmerich & Payne, Inc., and others No. 1 Graham, SW SW NE section 12-1n-3w.—Mid-Continent Map Co., Tulsa)

Blackstock Oil Co. and others No. 1-B Moody, NE cor. section 27-2-7, topped Atoka sand at 1,195 feet; total depth, 1,460 feet; bailed 28 bbls. of oil in 24 hours, and gas was estimated at 3,500,000 feet.

Carter Oil Co. No. 10 G. Smith, NE NW SW section 28-2-7, topped Hunton lime at 3,278 feet; Sylvan, 3,535 feet; total depth, 3,546 feet. It was acidized with 12,000 gallons, flowed 399 bbls. of oil in three hours, and made potential of 2,266 bbls. Same operator's No. 12 A. J. Harden, SE SE SW section 30-2-7, topped Bromide at 3,870 feet; McLish, 4,110 feet; Dense, 4,330 feet; total depth, 4,337 feet. After acidizing with 4,000 gallons, it flowed 911 bbls. of oil in one hour and 36 minutes, making potential of 2,279 bbls.

Aikman, Continental Oil Co. and others No. 1 Thompson, SW NW SE section 2-1n-7, Jesse area, flowed 700 bbls. of oil while running tubing and made potential of 3,358 bbls. Top of Bromide was 4,370 feet; sand, 4,532 feet; total depth, 4,541 feet.

Benedum-Trees Oil Co. No. 1 Jacobs, NE SW SW section 28-5-5, Bebee area, an old well, was deepened from 2,365 feet to Viola lime at 2,513 feet; new total depth, 2,576 feet; was acidized and pumped 9 bbls. of oil in 24 hours, recompleted.

Magnolia Petroleum Co. No. 6 Schaffer, NW SE NW section 25-2-6, an old well, was plugged back from 4,400 feet to 4,350 feet, swabbed 63 bbls. of oil in 16 hours and was recompleted for old potential of 1,889 bbls.

E. H. Moore and others No. 1-A Walker, NW cor. section 8-2-7, topped Hunton lime at 364 feet; water intruded at 415 feet; it was bottomed at 414 feet; plugged back to 420 feet, shot, produced 25 bailers of salt water an hour and was dry and abandoned.

Estimated Daily Production

Estimated daily average production of Oklahoma for the week ending January 23, and for the preceding week, was as follows:

	Barrels	
	Jan. 23	Jan. 16
Allen	7,175	7,075
Burbank	7,500	7,500
South Burbank	15,300	15,000
Balance Osage	21,200	21,300
Blackwell district	4,925	4,950
Bristow-Slick	7,800	7,825
Chandler	3,525	3,500
Crescent	12,475	11,150
Cromwell	3,325	3,350
Cushing-Shamrock	10,300	10,225
Duncan district	3,875	3,900
Edmond	18,425	17,225
Fish	7,475	7,325
Fitts	80,600	72,575
Gray	1,350	1,350
Graham	4,725	4,750
Healdton	9,350	9,450
Hewitt	4,300	4,350
Holdenville	950	950
Keokuk	8,050	5,875
Konawa	1,725	1,700
Lucien	12,500	13,900
Marshall-Lovell	700	725
Oklahoma City	155,975	162,200
Olympic	14,050	13,350
Papoose	875	875
Polo	1,950	1,975
Sasakwa and townsite	3,050	2,925
Sholem-Alechem	3,125	3,200
Seminole:		
Bowlegs	11,250	11,225
Carr City	6,225	6,250
Earlsboro	6,475	6,225
South Earlsboro	750	750
East Earlsboro	8,200	8,150
Little River	11,250	11,300
East Little River	1,225	1,125
Maud	850	775
Mission	2,325	2,275
Seminole	9,875	10,175
East Seminole	4,100	4,225
Searight	5,000	4,825
Total Seminole	67,525	67,900
St. Louis-Pearson	22,275	22,925
Tatums	3,825	3,900
Tonkawa-Garber-Thomas	5,500	5,400
Wewoka	3,625	3,900
Yale-Jennings	4,050	4,025
Other pools	70,900	72,125
Total Oklahoma	604,275	598,450

New Fitts Operations

New work in Pontotoc County: W. A. Delaney and others No. 1 Carroll, SE cor. section 14-2n-7, location; Stahl Petroleum Co. No. 8-B Dennis, NW SW SW section 21-2-7, rig; Sinclair Prairie Oil Co. No. 18 Woolley, NW SW SW section 22-2-7, digging cellar; Skelly Oil Co. and Phillips Petroleum Co. No. 1 Metropolitan Life B, SE NE SW section 23-2-7, digging cellar; Magnolia Petroleum Co. No. 2 Shelton, SW SE SW section 28-2-7, cellar; same company's No. 4 G. Smith, SE SE NW section 28-2-7, cellar; E. H. Moore and others No. 6-A Harper, SE NW NE section 29-2-7, rig; same

operators' No. 8 G. Smith, SE NE NW section 31-2-7, old well, rigging up rotary to deepen; W. A. Delaney and others No. 1 Starrett, SW SE NE section 21-5-5, location; Benedum-Trees No. 6 Malloy, SW SE SW section 30-5-5, cellar.

E. H. Moore and others No. 10 Akers, SE NW NE section 36-2-6, was bottomed at 3,755 feet and flowed 212 bbls. of oil in four hours while running tubing. After acidizing, it flowed 252 bbls. of oil in the first one-half hour gross, and flowed 363 bbls. net the next hour through casing, with 13,900,000 feet of gas. It was not a completion. Amerada Petroleum Corp. No. 4 Woolley, NE SE SE section 21-2-7, total depth 3,863 feet, was acidized with 18,000 gallons and flowed 650 bbls. gross in 50 minutes through casing, and 385 bbls. net in the next two hours through tubing. Stahl Brothers No. 8 Dennis, NW SW SW section 21-2n-7, was acidized with 15,000 gallons at 4,370 feet, total depth, and flowed 1,250 bbls. of oil gross through tubing and casing in nine hours. H. L. Blackstock No. 2 Kirby, NW NE SE section 22-2-7, perforated casing, acidized and flowed 80 bbls. of oil the first hour, gross and through casing, went dead the second hour and the third hour flowed 75 bbls. gross. Total depth was 4,170 feet.

Magnolia Petroleum Co. No. 28 Metropolitan Life, SE NW SE section 22-2-7, acidized with 10,000 gallons and flowed 593 bbls. of oil gross in one hour; total depth, 3,858 feet. H. L. Blackstock and others No. 3-A Moody, NW SW SW section 23-2-7, was bottomed at 3,883 feet and flowed 725 bbls. of oil through tubing in five hours; after acidizing with 10,000 gallons, it flowed 430 bbls. gross in three hours through tubing. H. L. Blackstock No. 6 Moody, SW NW SW section 23-2-7, flowed 90 bbls. of oil in 12 hours, gross and through tubing, after treatment with 5,000 gallons of acid at 4,380 feet, total depth. Phillips Petroleum Co. No. 3 Bates, SW NE NW section 26-2-7, total depth 3,805 feet, flowed 91 bbls. of oil through tubing in one hour, with 1,600,000 feet of gas, and was to acidize. J. E. Crosbie, Inc., No. 4 Harden, NW NE NE section 30-2-7, flowed 246 bbls. of oil gross in three hours after acidizing with 10,000 gallons at 4,356 feet, total depth.

Oklahoma County

Completions in Oklahoma County included three wells in the Oklahoma City field and one at Edmond.

Jones & Shelburne No. 1 McKeever, SE NE SW section 15-12-3w, topped Simpson formation at 6,385 feet; was bottomed at 6,485 feet; shot and acidized, and on potential test flowed 64 bbls. of oil in three hours, making potential of 444 bbls.

British American Oil Producing Co. No. 1 Wilkinson, SE SW SW section 23-12-3w, made potential of 514 bbls. of oil on gas lift. Production was from second Wilcox sand at 6,348 feet; total depth, 6,497 feet.

Big Chief Drilling Co. No. 1 State, SW NE SE section 27-12-3w, had second Wilcox sand at 6,350-6,500 feet; total depth, 6,503 feet; and made potential of 8,499 bbls. of oil, based on a flow of 708 bbls. in the last two hours of a three-hour test.

Pure Oil Co. No. 2 Berquist, NW SW SE section 30-14-3w, Edmond field, was completed for a water disposal well at 6,734 feet, total depth. It topped second Wilcox sand at 6,713 feet.

Ohio Oil Co. No. 1 Johnson, SE cor. section 25-14-4w, Edmond area, acidized with 10,000 gallons and flowed 246 bbls. of oil gross in 24 hours, with 4,000,000 feet of gas and from one-half to 1½ per cent salt water. It was plugged back from 6,680 feet to 6,584 feet. Magnolia Petroleum Co. No. 1 School Land, NE cor. section 36-14-4w, total depth 6,585 feet, was opened 15 minutes every two hours flowing 96 bbls. of oil in 24 hours at that rate. Operators were to acidize. Pure Oil Co. was preparing to shoot No. 11 Malm, SW cor. section 30-14-3w, after bridge had been knocked out and it flowed 624 bbls. of oil in 12 hours, total depth 6,707 feet.

Osage County

Carter Oil Co. and others No. 7 Cook, SE NW NE section 9-25-6, South Burbank pool, Osage County, topped Burbank sand at 2,680 feet; total depth, 2,716 feet, where water intruded. It was plugged back to 2,713 feet, swabbed and flowed 403 bbls. of oil in 23 hours and was completed for an estimated 425 bbls. of oil daily.

Lewis Production Co. No. 4 Strikeaxe, NE cor. section 20-24-7, Naval Reserve area, had Bartlesville sand at 2,674-95 feet, total depth, flowed 220 bbls. of oil in 24 hours and was completed. Lewis Production Co. and Texas Co. No. 7 Osage, SE cor. section 17-24-7, flowed 143 bbls. of oil in 24 hours from Bartlesville sand at 2,646-78 feet, total depth, completed.

Barnsdall Oil Co. No. 13 Osage, SW cor. section 17-23-12, had Bartlesville sand at 1,501-1,650 feet, pumped 20 bbls. of oil per day and was completed at 1,653 feet, total depth.

Mead Oil Co. No. 5 Osage, NE NW NE section 22-24-8, was dry and abandoned in Mississippi lime at 2,349-52 feet, total depth. Pure Oil Co. and others No. 147 Osage, SW SE NE section 5-23-8, an old well, was deepened from 1,308 feet to Oswego lime at 2,072-2,115 feet; total depth, 2,118 feet; acidized and flowed 500 bbls. of oil in the first 24 hours, and was recompleted, flowing at the rate of 200 bbls. of oil daily.

New work in Osage County: Coralena Oil Co. No. 6 Osage, SW NE NW section 21-25-6, was a location; Lewis Production Co. No. 12 Wilson, NE SE NE section 28-24-7, was digging cellar; same company's No. 10 Wilson, NW NE NE section 28-24-7, an old well, was preparing to deepen; same company's No. 4 Osage, SE cor. section 28-24-7, was building rig.

Seminole County

The largest producer completed in Seminole County was Gulf Oil Corp. No. 1 Manuel, SW NW SE section 35-11-5, which pumped 589 bbls. of oil in 24 hours from Wilcox sand at 4,646 feet, total depth 4,659 feet.

L. W. Prunty No. 5 Boring, NW NW SE section 17-9-7, flowed 30 bbls. of oil and 6 bbls. of water in 24 hours. It topped Gilcrease sand at 3,417 feet; was bottomed at 3,458 feet, water in-

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truded, and it was plugged back to 3,451 feet to complete.

Carter Oil Co. and others No. 6 Aldridge, NE NE NW section 35-11-6, had Misener sand at 4,159 feet; Hunton lime, 4,167 feet; total depth, 4,169 feet; flowed 284 bbls. of oil in 24 hours and was completed.

R. P. Kinney and others No. 1-A Spaulding, SE NW NE section 6-7-7, had a showing of oil in Calvin sand at 2,075 feet, but had a hole full of water and was dry and abandoned at 2,082 feet, total depth. Winona-Jarvis-Holmes No. 1 Dindy, SE SW SE section 6-7-8, topped Cromwell series at 3,290 feet; had a hole full of water at 3,415 feet, total depth; plugged back to 3,234 feet and shot, but was dry and abandoned. Little River Oil & Gas Co. No. 1 Davis, NE NW SW section 17-8-7, was dry and abandoned at 3,328 feet, total depth. It topped Cromwell sand at 3,235 feet, and had sandy shale at 3,267 feet.

New work in Seminole County: Shell Petroleum Corp. No. 1 Caesar, NW SE NE section 11-7-6, an old well being deepened, was drilling at 4,415 feet; Ross Oil & Gas Co. No. 2 Davis, SE SW NW section 16-9-7, was a cellar; Deep Rock Oil Corp. and others No. 3 Lozier, NE SW NW section 20-9-7, was a location; Amerada Petroleum Corp. and others No. 2 Pryor, SW NE NW section 36-10-7, had built rig corners; Merva Oil Co. No. 1-B Johnson, SE NW NE section 10-10-8, was building rig for a Wilcox sand test; Sinclair Prairie Oil Co. No. 1 Lefka, SE SE NW section 35-11-5, was a location.

L. W. Prunty No. 4 Boring, NW NE SE section 17-9-7, was deepened to 3,451 feet, flowed 50 bbls. of oil in 24 hours and was cleaning out. Previously, it had flowed 100 bbls. of oil through casing in 24 hours at 3,446 feet.

Okfuskee County

Five new Senora sand producers were completed in southwestern Okfuskee County. Blackwell Oil & Gas Co. No. 13 Dalton, NW SW NE section 36-10-8, topped sand at 1,725 feet; total depth, 1,747 feet; and pumped 380 bbls. of oil and 15 bbls. of water. Same company's No. 14 Dalton, SW SW NE section 36-10-8, flowed 225 bbls. of oil in 24 hours after a shot in sand at 1,722 feet, total depth 1,745 feet.

E. Evans and C. R. Morris No. 2 Lively, NE SE NW section 36-10-8, had sand at 1,734 feet; total depth, 1,746 feet; and made potential of 480 bbls. of oil in 24 hours, through tubing.

Manahan Oil Co. No. 4 Dalton, NW NW SE section 36-10-8, had sand at 1,735 feet, was bottomed at 1,744 feet, shot and flowed 387 bbls. of oil in 24 hours.

Ark Royalty Co. No. 4 Fisher, NE NW SE section 18-10-9, was shot and swabbed 144 bbls. of oil in 24 hours from Senora sand at 1,870 feet; total depth, 1,917 feet.

New work in Okfuskee County was reported as follows: W. A. Delaney and others No. 1 School Land, SW cor. section 8-10-9, spudded; Oklahoma Oil Corp. No. 1 Ott, SW NW NW section 19-10-9, rigging up rotary; Chapman & McFarlin No. 7 Williams, NE SW NW section 30-10-9, rig; Mid-Continent Petroleum Corp. No. 1 McKeroman, NW NE SE section 24-12-8, an old well, was rigging up rotary to deepen.

Chapman & McFarlin No. 3 K. Williams, SW SE SW section 25-10-8, topped Senora sand at 1,722 feet, was bottomed at 1,747 feet, flowed 200 bbls. of oil in 24 hours, died and was cleaning out. Stanolind Oil & Gas Co. No. 2 Bunner, SW SE NE section 25-10-8, topped Senora sand at 1,797 feet, shot with 50 quarts at 1,798-1,812 feet and was cleaning out. Chapman & McFarlin No. 6 Yarbrough, SE NW NE section 18-10-9, found Senora sand at 1,841 feet, total depth 1,882 feet, shot with 60 quarts at 1,853-79 feet, and was testing. J. J. Deaner No. 2 Schultz, NE SE NW section 18-10-9, was cleaning out after shot at 1,881 feet, total depth.

Pottawatomie County

The only new well completed in Pottawatomie County was Magnolia Petroleum Co. No. 2 Green, SE SW NW section 13-7-4, St. Louis district, which swabbed 271 bbls. of oil net in 12 hours after ripping casing and acidizing. It topped Viola lime at 3,935 feet; Simpson Dense, 3,990 feet; Dolomite, 4,040 feet; first Wilcox sand, 4,085 feet; second Wilcox sand, 4,200 feet; total depth, 4,235 feet, where it had 2,000 feet of water in the hole, and plugged back to 4,180 feet to complete as a Viola and Dolomite producer.

Indian Territory Illuminating Oil Co. No. 1 Weldfelt, NE NE NW section 2-7-4, an old well, was deepened from 4,047 feet to Simpson Dense at 4,090 feet; Dolomite, 4,132 feet; new total depth, 4,207 feet. After acid treatment, it pumped 48 bbls. of oil and 5 bbls. of water in 24 hours, recompleted. Atlantic Refining Co. and Darby Petroleum Corp. No. 1 Standridge, SE SW SW section 10-7-4, an old well, was plugged back from 4,015 feet to 2,580 feet, shot, produced 1,500,000 feet of gas and was recompleted.

Magnolia Petroleum Co. No. 3 Caudle, NE NW SW section 13-7-4, was location for a new test in Pottawatomie County. Stanolind Oil & Gas Co. No. 2 U. R. Rushing, SE SW SE section 32-11-4, was a rig.

Hughes County

A Hughes County wildcat, the R. K. Ellison No. 1 Peters, SE NW SE section 8-6-10, was dry and abandoned at 4,301 feet. It topped Booch sand at 2,765 feet; Gilcrease series, 3,529 feet; Wapanucka, 3,918 feet; Union Valley, 4,217 feet, and Cromwell, 4,270 feet.

The following new work was reported in Hughes County: Harmann No. 3 Jacobs, NE NE NW section 15-7-8, digging cellar; Iglehart No. 1 Warren, NW NE SW section 29-7-8, rig; Texas Co. No. 1 Meadors, C NE NE section 8-8-10, an old well, was rigging up standard tools to deepen; Serran No. 2 Tucker, NW SE SE section 2-9-8, spudded.

Lincoln County

Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 1 Peck, SE SE NW section 35-14-4, swabbed 348 bbls. of oil in 10 hours after plugging back to 4,205 feet from 4,210 feet, total depth, and

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was completed. It topped first Wilcox sand at 4,164 feet; second Wilcox sand, 4,184 feet.

Wilcox Oil & Gas Co. No. 3 Sac & Fox, NE NE SW section 15-14-6, had Peru sand at 2,912-80 feet; total depth, 2,988 feet; shot, and flowed 30 bbls. of oil in 24 hours through tubing, with 3,000,000 feet of gas.

The only new work reported in Lincoln County was at Amerada Petroleum Corp. and others No. 1 Holik, SE SE NW section 10-12-5, a cellar.

Pawnee County

R. D. Davis No. 4 fee, SW NW NW section 21-21-8, an old Pawnee County well, was deepened from 700 feet to 1,447 feet, plugged back to 1,212 feet and pumped 4 bbls. of oil in 24 hours, recompleted.

Bay Oil Corp. No. 1-A Beetho, SE cor. section 14-20-7, topped Mississippi at 3,030 feet; Arbuckle lime, 3,080 feet, and was dry and abandoned at 3,114 feet, total depth.

Location for a new wildcat in Pawnee County was announced. It was Forest Development Co. No. 1 Greisel, C NW NE section 21-21-5.

Logan County

Shell Petroleum Corp. No. 1 Freelove, SW cor. section 17-19-4w, an old Logan County well, was plugged back from 6,117 feet, total depth, to 4,740 feet and was temporarily abandoned.

Eason Oil Co. and Sinclair Prairie Oil Co. and others No. 1 Smith, SW NW NW section 13-17-1w, was building rig for a new Logan County test. Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 1 Goddard, NE NE SW section 20-18-4w, was a rig and digging pits.

Carter County

Carter Oil Co. No. 38 Ward, NW NE NW section 6-4s-3w, Carter County, had several sands and was completed in sand at 1,187 feet, total depth. It pumped 45 bbls. of oil and 1 bbl. of water in 24 hours.

Cox & Hamon No. 31 R. Wesley, NE SW SW section 3-4s-3w, had sand at 1,058-62 feet; total depth, 1,072 feet, and pumped 11 bbls. of oil daily.

Samedan Oil Co. No. 2 Higgins, SW SW NE section 7-2s-2w, an old well, was deepened from 1,834 feet to 2,551 feet, had best pay at 2,400-10 feet, and pumped 80 bbls. of oil in 12 hours, recompleted.

Pure Oil Co. No. 24 Westheimer & Daube, SE NE NE section 9-4s-3w, swabbed 21 bbls. of oil and 13 bbls. of water in 24 hours and was completed at 1,094 feet, total depth.

Two new tests were reported in Carter County. Cox & Hamon No. 32 Wesley, NE SW SW section 3-4s-3w, was drilling at 690 feet. Carter Oil Co. No. 39 Ward, SE NE NW section 6-4s-3w, was a machine.

Marshall County

Kingston Oil & Gas Co. No. 1 Hefner, NE SE NW section 21-7s-6e, only new test reported in Marshall County, was a machine.

Creek County

Sinclair Prairie Oil Co. No. 6 Slick, SW cor. section 3-17-7, Creek County, topped Bartlesville sand at 2,645 feet, total depth 2,727 feet, pumped 25 bbls. of oil and 5 bbls. of water in 24 hours, completed.

Johnson Oil & Refining Co. No. 3 Flinchum, SW NE SW section 11-19-9, had Layton sand at 1,155-78 feet, was bottomed at 2,152 feet, and pumped 41½ bbls. of oil in 24 hours. Gled Oil Co. No. 11 Koch, C SE NE section 20-19-9, was completed as a repressure well after plugging back from top of the Red Fork at 2,311 feet, total depth, to 2,220 feet. R. F. Harmon No. 1-A Bryden, NE NW NE section 17-14-8, had a hole full of water at 1,105 feet, total depth, and was dry and abandoned. Big Four Petroleum Co. No. 1 Moore, SE SE NE section 4-18-8, had sand at 2,816-56 feet, total depth, and was dry and abandoned.

First reports of new operations in Creek County: Sinclair Prairie Oil Co. No. 2 Shaffer, NW SE SW section 3-17-7, an old well, was cleaning out at 2,588 feet, total depth 2,606 feet; Johnson Oil Refining Co. No. 4 Flinchum, CSL NE SW section 11-19-9, was digging pits and moving in machine; Sinclair Prairie Oil Co. No. 5 Slick, CNL

(Continued on Page 214)

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Michigan Field Report

By
PAUL A. ELLIOTT

POOL IN SHERMAN TOWNSHIP IS PROVING A VALUABLE FIND

MUSKEGON, Mich., Jan. 25.—The Sherman Township, Isabella County, field took the lead among four new oil producing areas in Michigan last week with two completions adding 810 bbls. of daily initial, and an acid-treated well increasing 375 bbls. daily, the three comprising all but 40 bbls. of the state's newly developed output of 1,585 bbls. daily.

Pure Oil Co. brought in the larger of the two new wells, the No. 1 Ryckman, SE SE NE section 33-15n-6w, Sherman Township, located diagonally northwest of the same company's No. 1 Embrey discovery. The new well made 360 bbls. a day from a total depth of 3,631 feet, in the Dundee limestone formation. Natural flow of 225 bbls. was increased to 360 bbls. by acid treatment.

McClanahan Oil Co. brought in the other new well, the No. 2 Beutler, NW NW SW section 34, east offset to the discovery well, making from 250 to 350 bbls. daily, also from the Dundee topped at 3,614 feet and drilled into the pay at 3,620 feet.

The Pure No. 1-A R. Embrey, NE NE NE section 33, same township, was increased from 275 to 650 bbls. daily by acid treatment.

The McClanahan No. 1 Beutler, SW SW NW section 34, also was nearing completion in the Dundee, while the Turner Petroleum Corp. No. 1 Merrihew, SE SE NW section 28, same township, was drilling into the Monroe on a location a quarter of a mile north of the unsuccessful Pure No. 1 Dutcher, recently completed dry in the Dundee.

Vernon—Isabella

In the new North Vernon field, where George G. Hanners No. 1 Currie, SW NE NW section 5-16n-4w, was dry in the Dundee, T. F. Caldwell, Inc. struck a show in the No. 1 Chapple and others, SE NE SE section 21, and was being treated with acid with prospects of commercial production. Two other tests were nearing Dundee completion in the same area, the Chartiers Oil Co. No. 1 Mary Edith Gorr, SE NE SW section 6, and the T. F. Caldwell, Inc. No. 1 Regan and Mahar, NW NW NW section 36. Nollem Oil & Gas Corp. also had drilled into Dundee oil in the No. 5 Thayer, SE SE SE section 22, same township.

Midland County

Midland County reentered the picture proving it is still one of Michigan's best producing areas when Braden and Saunders completed the No. 6 Stapleton, NW SE NE section 13-14n-2w, Greendale Township, for 460 bbls. daily from the Dundee after acid treatment at a total depth of 3,553 fet.

The Pure Oil Co. No. 7-C Bond, C N half NE NE section 12-13n-2w, Jasper Township, was unsuccessful after trying to plug back from 3,440 to 3,437 feet to test a Dundee show. It is expected to be plugged. The Pure No. 15 Bond-Root, C S half NE NE section 3, same township, was treating with acid after flowing 115 bbls. daily and two other Jasper tests were nearing Dundee completion, namely: Pure No. 17 Bond-Root, N half SE SE and No. 18 Bond-Root, C S half NW NE, both in section 3.

The Pure No. 2-E Root, C S half SW NW section 7-13n-1w, Porter Township, Midland County, also was near Dundee completion.

Arenac County

James E. Duffy was testing a show of oil encountered in the No. 1 Keef, SW SE SW section 3-20n-4e, Clayton Township, Arenac County, nearest to completion of five new tests in another of Michigan's recently discovered fields. Dundee was topped at 2,418 feet and the hole drilled 135 feet in though the show was encountered 16 to 17 feet in.

Weber Oil Co. was treating the No. 1 Helein, SW SE SE section 2, same township, in which a natural flow of 900 bbls. daily was struck in the Dundee topped at 2,485 feet and drilled to 2,501 feet.

Four other tests were nearing Dundee completion in the same township as operators carried on an extensive drilling program. They were: Turner Petroleum Co. No. 1 Thompson, NW SE SE section 4; McClanahan Oil Co. No. 2 Buffalo Land Co., NW NE NW section 10; Gordon Oil Co. No. 1 Crandall, NE NE SE section 10, and Gordon Oil Co. No. 1 Mutch, NW SE NW section 11.

The J. E. Flanagan No. 1 Whipple, NW NW NE section 18-20n-5e, in the adjoining Mason Township, was dry in the Berea gas sands and expected to be abandoned at 1,375 feet, 2½ miles east of production.

Gladwin County

One test was drilling into the Dundee as a south offset of the Goll, Graves & Mechling-Crigano, discovery well in Buckeye Township, Gladwin County, and another was nearing completion in the Beaverton Township area, same county. They were the Frank T. Schooneas, Trustee No. 1 Yager, SW NE NE section 36, and the H. E. Bell No. 1 Killian, SW SE SW section 25-17n-2w, both in Beaverton Township.

Montcalm County

An oil well, a dry hole and a gasser were completed in two Montcalm County townships. The Daily Crude Oil Co. made a 40-bbl. Dundee oil producer of the No. 4 Fulford, NW NW SW section 36-11n-5w, Ferris Township, in the Crystal field, after previously drilling into the pay sands. The Leslie T. Barber No. 1 Rice-Gaffield, SE SE NE section 20-12n-7w, deep test in the state's largest gas area, was dry in the Dundee topped at 3,442 feet and drilled to 3,560 feet.

The Kinwell Oil Co. increased the open flow capacity of the No. 1 Fleck, C SE NE section 15, Belvidere Township, from 1,000,000 feet the week before to 5,100,000 feet when finished in the Michigan Stray sands drilled from 1,230 to 1,250 feet. Operators considered a shot to open up tight gas sands.

Superior Drilling & Producing Co. recovered a bit lost in the Hyatt and Norton No. 1 Eckert, NW SW SE section 10, same township, when it was first drilled into the Michigan Stray gas sands last spring and was completed for a flow of about 8,000,000 feet compared with nearby wells flowing up to 60,000,000 feet daily.

St. Louis Pipe & Supply Co. was drilling into the Dundee in the No. 1 Osterhaut, SW NW NW section 36, Ferris Township, while two Crystal Township tests were nearing Dundee completion, the Swanson Oil Co. No. 7 West, SW NE NW section 11, and the Lady Luck Oil Co. No. 1 Frank Urich, NW NW SW section 14.

Two Montcalm County wildcats drilling in Traverse and Dundee limestones were: Roy F. Ide No. 1 Mortenson, C NW SW section 11-11n-6w, Day Township, and R. E. Gallagher No. 1 Hayden, NW NE NE section 26-11n-7w, Douglass Township.

Mecosta County

Taggart Brothes, Inc., completed a deep test in Colfax Township, Mecosta County, the No. 1 Lintemuth, NW NW NW section 35-15n-9w, as dry in the Dundee a mile north and west of the Austin Township, Mecosta County, gas field.

Clinton County

Operators were plugging the Petroleum Exploration Co. No. 1 Schneeberger, NE SE NW section 11-5n-2w, Dewitt Township, Clinton County, dry in the Dundee after striking water at 2,950 feet, or 55 feet in the limestone.

Gratiot County

Hyatt & Norton were nearing completion in the Michigan Stray gas of the No. 1 Cooley, SW SW section 3-10n-4w, in the New Haven Township, Gratiot County, gas area.

Two deep tests in the county were still uncompleted though drilling in the Dundee, namely: the Herbert Snell No. 1 Smead, SW SW SE section 11-11n-4w, and the Talbot & Hutton No. 1 Sharrar, NW NW NE section 23, same township.

Wildcats

M. J. Ingold was drilling more than 15 feet in the Dundee in the No. 1 Donley, NE NE NE section 31-22n-8n, Lake Township, Missaukee County.

M. Bliss Keeler was drilling in the Dundee in the No. 1 Beall, C NE NW section 24-18n-9w, Cedar Township, and Dibble Brothers into the Lower Traverse in the No. 1 Edward E. Townsend, C E half NW NW section 5-20n-7w, Marion Township, both in Osceola County.

R. E. Gallagher was nearing completion of an extension test in Ogemaw Township and County, the No. 1 Gussman, SW NE SE section 24-22n-1e, located south and west of production in the town-lot section of the Ogemaw field in and near the village of West Branch.

The Harley Williams No. 1 Hanson & Raae, SE SE SE SE section 15-30n-1w, Charlton Township, Otsego County, wildcat, also was drilling into the Dundee at 2,276 feet.

Special interest had been attracted in the Ponchartrain Petroleum Corp. No. 1 Boynton, NW SE NE section 27-4s-8e, Sumpter Township, Wayne County, where structures were running about 200 feet higher than on several tests 6 miles to the west, north and northwest. Four wells located 12 miles southwest are commercial producers from the Trenton limestone.

New Locations

Rigs were being erected for two new tests in section 8, New Haven Township, the Gratiot County gas field, by Lucas & Thornberry.

Lentz & Miller were moving in to drill a new test in the Ravenna Township, Muskegon County, field, with Fred B. Whitlock and the West Michigan Consumers Co. on the Zayacz lease, SW section 7-9n-14w.

The Verona Crude Oil & Gas Co. of Battle Creek was preparing to drill a Trenton test on a tract of 6,600 acres near the city of Battle Creek in Calhoun County, state permit not yet issued.

Superior Drilling Co. also was preparing to move in a rig to drill on the Beebe lease in section 3, Wayne Township, Cass County, another southern Michigan wildcat location.

Hal-Be-Oyle & Gas Co. was preparing to try out the first rotary hole in the new Clayton Township, Arenac County, pool with Taggart Brothers, Inc., contractors for the No. 1 Peavy, SE SW SE section 4-20n-4e, a mile west of the McClanahan-Seignious, discovery well of the field.

(Continued on Page 207)

Rocky Mountain Area

By
T. R. INGRAM

NORTHERN AREA SNOWED IN; NEW MEXICO TESTS SHOW OIL

DENVER, Colo., Jan. 25.—A blizzard, accompanied by snow and subzero weather caused a shutdown of most of the wildcats in the Rocky Mountain area. Only wells prepared for winter drilling and in the principal fields were able to keep going.

Colorado had no completions or new locations.

The Standard Oil Co. of California has opened headquarters at Cheyenne preliminary to marketing products in the Rocky Mountain area and ultimately building a refinery. The Yale Oil Corp. is preparing to refine its Garland-Byron crude at Lovell. Rumors of a natural gas line from Carbon County, Wyoming, to Colorado have aroused considerable speculation. Lance Creek has three near completions.

Montana wells were mostly shut down. One new location was made in Cut Bank.

NEW MEXICO

First showing of oil was reported at Magnolia Petroleum Co. No. 1-G State, section 24-17-34, wildcat in the Lovington area, southeast New Mexico. It produced a bailer of oil an hour at 4,450-51 feet and shut down for casing job. The wildcat was reported running slightly higher geologically than a producing well about a mile to the northwest, and it was expected that pay increases would be found by drilling about 200 feet further into the lime.

A wildcat more than 8 miles southeast of the Hobbs pool reported its second showing of oil. It was the Rushwold and others No. 1 E. E. Carter, C NW NE section 30-20-39. The new show was at 4,580-86 feet, and it was drilling ahead below 4,618 feet, in lime. First show was at 4,316-28 feet.

Work was started at a new wildcat, more than 3 miles east of the fast-closing gap between the Eunice and Monument pools. It was Continental Oil Co. No. 1 Skaggs Permit, C NE SE section 24-20-37, at which cellar and pits were being dug and material moved in.

More production in the sand area of Lea County was registered at Texas Co. No. 1 Black, C SW NE section 21-24-37, in the Plains northwest extension of the Stuart sand pool. It flowed 278 bbls. of oil in eight hours through tubing, with 800,000 feet of gas.

In the Sims or north sand pool, Skelly Oil Co. No. 3 Baker, section 27-22-37, was completed after shot at 3,516-3,600 feet, total depth. It flowed 130 bbls. of oil in 20 hours, with 1,250,000 feet of gas.

Shell Petroleum Corp. No. 1 State T, C SE NE section 34-20-35, wildcat 8 miles west of the north end of the Eunice pool, showed 1,650 feet of sulfur water on drillstem test at 4,045-4,195 feet, total depth, and was dry and abandoned. No shows were reported.

Magnolia Petroleum Co. No. 3 Carson, C SW SW section 28-21-37, in the Hardy lime pool near the town of Eunice, flowed 80 bbls. daily through tubing after acidizing and shooting at 3,696-3,760 feet; total depth, 3,775 feet.

Other Lea County completions were as follows:

Atlantic Refining Co. No. 1-M State, C NE SE section 36-20-36, Eunice, flowed 351 bbls. of oil naturally through tubing; top of pay, 3,795 feet; total depth, 3,845 feet. Empire Oil & Refining Co. No. 3-F State, C SE SE section 30-20-37, Eunice, topped pay at 3,740 feet; was bottomed at 3,838 feet; acidized and flowed 240 bbls. of oil in six hours through tubing. Gulf Oil Corp. No. 1-G Graham-State, C SW SE section 17-19-37, Monument, topped pay at 3,905 feet; total depth, 3,995 feet; acidized three times, and flowed 550 bbls. of oil in 20 hours.

Gulf Oil Corp. No. 2 Sunshine, C SE SW section 2-20-37, flowed 180 bbls. of oil in six hours after second acid treatment; topped pay at 3,733 feet; total depth, 3,840 feet. Repollo Oil Co. No. 3 Barber, section 3-8-20, topped pay at 3,835 feet; total depth, 3,875 feet; flowed 993 bbls. in 23 hours through tubing choke; acidized, and flowed 977 bbls. in 12 hours through tubing choke. Same operator's No. 2-A Bordages, section 21-19-37, topped lime at 2,905 feet; was bottomed at 3,997 feet, acidized two times and was dry and abandoned. Sun Oil Co. No. 5 Akens, section 3-21-36, flowed 144 bbls. of oil in three hours through choke after acidizing with 4,000 gallons; top of pay was 3,800 feet; total depth, 3,852 feet.

One well was completed in Eddy County. Barnsdall Oil Co. No. 4 Dodd, C SE SE section 22-17-29, pumped 143 bbls. of oil a day after plugging back to 2,700 feet from 2,803 feet, total depth.

Monument Area

Skelly Oil Co. No. 2 State F, C SW SE sec. 17-20-37. Cellar and pits.
Continental Oil Co. No. 1 Sanderson B, C E half NE NE sec. 10-20-36. T.D. 3,900 ft.; packer at 3,825 ft.; testing.
Continental Oil Co. No. 1 Britt B, C NE NW sec. 8-20-37. Drlg. 3,355 ft.
Ennisbrook Oil Co. No. 1 Wulff, NW cor. sec. 17-20-37. T.D. 3,855 ft.; testing.
Phillips Pet. Corp. No. 1 Patsy, C NW NE sec. 18-20-37. Drlg. 2,718 ft.
Humble O. & R. Co. No. 2 Laughlin, C SW SW sec. 4-20-37. Drlg. 3,685 ft.
Gulf Oil Corp. No. 2 Kutter A, C NW SE sec. 20-19-37. T.D. 4,002 ft.; cleaning out after shot.
Amerada Pet. Corp. No. 1 Larsen, C SE SW sec. 32-19-37. T.D. 3,796 ft.; set 6⅝-in. csg. at 3,790 ft.
Stanolind O. & G. Co. No. 2 Gillully, C NW NE sec. 21-20-37. T.D. 3,740 ft.; set 5½-in. at 3,687 ft.
Amerada Pet. Corp. No. 1 Byrd, C NW NE sec. 12-20-36. Drlg. 3,488 ft.
Amerada Pet. Corp. No. 2 Byrd, C SW NE sec. 12-20-36. Drlg. 3,414 ft.
Barnsdall Oil Co. No. 6 Cooper, sec. 7-20-37. Drlg. 3,442 ft.
Empire O. & R. Co. No. 4 Laughlin, sec. 8-20-37. Drlg. 3,400 ft.
Ohio Oil Co. No. 8 Barber, sec. 5-20-37. Drlg. 2,820 ft.
Ohio Oil Co. No. 1 Laughlin, sec. 9-20-37. T.D. 1,170 ft.; set 9⅝-in. at 1,166 ft.
Amerada Pet. Corp. No. 2 Larsen, C NE NW sec. 32-19-37. Drlg. 3,104 ft.
Amerada Pet. Corp. No. 1 Love, C NW SE sec. 32-19-37. Drlg. 1,221 ft.
Amerada Pet. Corp. No. 2 Anderson, C SE SW sec. 8-20-37. Drlg. 1,323 ft.
Amerada Pet. Corp. No. 2 Phillips, C NE SW sec. 33-19-37. T.D. 207 ft.; W.O.C.
Amerada Pet. Corp. No. 1-W State, C SE NE sec. 30-20-37. Drlg. 2,425 ft.
Amerada Pet. Corp. No. 2-W State, C SW NE sec. 30-20-37. Drlg. 1,270 ft.
Continental Oil Co. No. 1-B-18 Britt, C NW NW sec. 18-20-37. Drlg. 2,560 ft.
Gulf Oil Corp. No. 2 Anderson, C NE NW sec. 17-20-37. T.D. 245 ft.; W.O.C.
Gulf Oil Corp. No. 2-F Graham-State, NE NE sec. 36-19-36. T.D. 2,390 ft.; set 7⅝-in. at 2,384 ft.
Gulf Oil Corp. No. 2-B Kutter-State, C NW NW sec. 28-19-37. Drlg. 1,660 ft.
Gulf Oil Corp. No. 4 Mathews, C NE SE sec. 6-20-37. Drlg. 2,664 ft.
Gulf Oil Corp. No. 3 Sunshine, C NE SW sec. 30-20-37. Rigging up rotary.
Gulf Oil Corp. No. 1-B Weir, C NW SE sec. 26-19-36. Spudded.
Gulf Oil Corp. No. 2 Whitmire, C NW NE sec. 8-20-37. T.D. 2,371 ft.; set 9⅝-in. at 2,362 ft.
Humble O. & R. Co. No. 2-D State, C NE NE sec. 20-19-37. Drlg. 3,289 ft.
Humble O. & R. Co. No. 9 State-Aggies, C SW NW sec. 31-20-37. Drlg. 2,928 ft.
Oil Well Drlg. Co. No. 1 Wood-State, NW¼ sec. 16-20-37. T.D. 134 ft.; W.O.C.
Oil Well Drlg. Co. No. 2 Wood-State, NW sec. 16-20-37. Cellar and pits.
Shell Pet. Corp. No. 4-B State, C SE NW sec. 36-19-36. T.D. 1,090 ft.; set 9⅝-in. at 1,087 ft.
Tide Water Oil Co. No. 2-I State, C NE SW sec. 16-20-37. Rigging up rotary.
Continental Oil Co. No. 3-A-17 State, C NW SW sec. 17-19-37. Location.
Anderson-Prichard Oil Co. No. 7 Britt, SE NW SE sec. 7-20-37. Rigging up rotary.
Anderson-Prichard Oil Corp. No. 8 Britt, C SW SE sec. 7-20-37. T.D. 265 ft.; W.O.C.
Tide Water Oil Co. No. 2 State I, C NE SW sec. 16-20-37. Cellar and pits.
Gulf Oil Corp. No. 2 Anderson, C NE NW sec. 17-20-37. Bldg. rig.
Gulf Oil Corp. No. 1 Weir B, C NW SE sec. 26-19-36. Bldg. rig.
Amerada Pet. Corp. No. 3 Byrd, sec. 3-12-20. Cellar and pits.
Amerada Pet. Corp. No. 3 Larson, sec. 32-19-37. Derrick.
Atlantic Ref. Co. No. 2-M State, sec. 36-20-36. Rigging up rotary.
General Crude Oil Co. No. 1-G State, sec. 16-20-37. Cellar and pits.
Gulf Oil Corp. No. 3 Anderson, sec. 8-20-37. Location.
Magnolia Pet. Co. No. 2 Cary, sec. 21-22-37. Location.
Repollo Oil Co. No. 5 Barber, sec. 7-20-37. Cellar and pits.
Repollo Oil Co. No. 7 Barber, sec. 7-20-37. Location.
Repollo Oil Co. No. 2 State, sec. 32-20-37. Location.
Shell Pet. Corp. No. 1-M State, sec. 1-21-35. Moving in rotary.
Texas Co. No. 2-J State, sec. 24-19-36. Location.

Eunice Area

Getty Oil Corp. No. 1 State D, C SE NE sec. 32-20-37. T.D. 3,860 ft.; testing.
Gulf Oil Corp. No. 2 Molly Campbell, C NE SW sec. 7-21-36. T.D. 3,900 ft.; testing.
Two States & Southern Pet. Ex. No. 1 McQuatters, C NW SE sec. 11-21-36. T.D. 1,365 ft.; setting csg.
Gulf Oil Corp. No. 1 J. H. Daly, NE NE SW sec. 6-22-36. T.D. 3,831 ft.; testing.
Gulf Oil Corp. No. 2 Sunshine, C SE SW sec. 30-20-37. T.D. 3,840 ft.; to acidize.
Texas Pacific Coal & Oil Co. No. 3 State A, Acct. 2, C SW NE sec. 8-22-36. Drlg. 3,766 ft.
Gulf Oil Corp. No. 4-C Bell-State, C SE NW sec. 15-21-36. Drlg. 1,375 ft.
Gulf Oil Corp. No. 3 Campbell, C NW SW sec. 7-21-36. Temp. abd.
Gulf Oil Corp. No. 4 Collins, C NE SW sec. 14-21-36. Drlg. 1,365 ft.
Gulf Oil Corp. No. 4 Houston, C NW SE sec. 7-21-36. Derrick.
Gulf Oil Corp. No. 4-C Janda-State, C NE SW sec. 15-21-36. Drlg. 1,370 ft.
Gulf Oil Corp. No. 4 Leonard, C SW NE sec. 22-21-36. Rigging up rotary.
Gulf Oil Corp. No. 6 Orcutt C, C NE NW sec. 6-21-36. T.D. 2,535 ft.; W.O.C.
Bert Fields et al No. 1 Turner-State, SW SW NE sec. 32-20-37. Rigging up rotary.
Continental Oil Co. No. 18-B-4 Meyer, C NW NE sec. 4-21-36. Derrick.
Continental Oil Co. No. 4-D-11 State, C NE SW sec. 11-21-36. Moving in material.
Texas Co. No. 3 Rector, NE NW SE sec. 30-21-36. Bldg. derrick.
Jim Murray No. 4 State-Wallace, sec. 3-21-36. Cellar.

Sims Area

Devonian Oil Co. No. 1 Christmas, NE NE SE sec. 28-22-37. T.D. 3,603 ft.; cleaning out after shot.
Skelly Oil Co. No. 1 R. R. Simms C, C SE SW sec. 3-23-37. T.D. 3,381 ft.; fishing.
Penrose & Rowan No. 3 Cary, C SE NW sec. 22-22-37. T.D. 1,150 ft.; S.D.O.
W. H. Street et al No. 1 Wood, C W½ SE NE NE sec. 22-22-37. Drlg. 3,280 ft.
J. E. Farrell No. 1 Walden C, sec. 15-22-37. T.D. 3,507 ft.; fishing.
J. E. Farrell No. 1-A Walden, C SW NW sec. 15-22-37. T.D. 3,537 ft.; waiting on machine.
Skelly Oil Co. No. 2 R. R. Simms, C NE SW sec. 3-23-37. T.D. 1,193 ft.; waiting on rig.
Skelly Oil Co. No. 2 Ella Simms, C SW NE sec. 3-23-37. T.D. 164 ft.; W.O.C.

Cooper Area

Southern Oil Corp. No. 1 Gates, C SW NW sec. 23-24-26. T.D. 3,514 ft.; S.D. for orders.
Yingling Oil Co. No. 1-B-3 Vaughan, C SE NW sec. 3-24-36. T.D. 3,577 ft.; testing.
Yingling Oil Co. No. 1-B-9 Vaughan, NE cor. sec. 9-24-36. T.D. 3,685 ft.; set 5-in. at 3,610 ft.
Shell Pet. Corp. No. 1 Guthrie, C SW SE sec. 34-23-36. T.D. 3,928 ft.; P.B. 3,780 ft.; W.O.C.
El Paso Natural Gas Co. No. 1 G. W. Toby, C SE SE sec. 12-24-36. Drlg. 2,640 ft.

Lea County—Miscellaneous

Plains Prod. Co. No. 4 Knight, C SW SW sec. 22-24-37. Rigging up spudder.
C. L. Carlock et al No. 1 Quincy-Ricker, C SE SE sec. 7-16-36. Wildcat; S.D. for drlg. line at 5,062 ft.
J. C. Clower No. 1 Turner, C SE SE sec. 29-21-37. T.D. 3,780 ft.; C.O. after shot.
Culberson-Irwin & Stovall No. 2 Stuart, NW SE NE sec. 20-25-7. T.D. 3,277 ft.; P.B. 3,175 ft.; to set whipstock.
Samedan Oil Co. No. 2 Hughes, C NW SE sec. 4-23-37. T.D. 3,625 ft.; cleaning out.
Brown & Reynolds No. 1 Parcell, C NW SE sec. 8-21-38. Wildcat; drlg. 3,440 ft.
Baldridge et al No. 1 Blakely, C NW NE sec. 5-20-38. Wildcat; drlg. 4,080 ft.
Rushwold Oil Co. No. 1 Carter, C NW NE sec. 30-20-39. Wildcat; S.O. 4,580-86 ft.; drlg. 4,618 ft.
Maxwell, Crandall & Osmond No. 1 Lane-State, C SW NW sec. 32-10-34. Wildcat; sulfur water 4,809-10 ft.; T.D. 4,819 ft.; S.D.
Tide Water Oil Co. No. 1 Coates B, C NW NW sec. 21-25-37. T.D. 3,077 ft.; P.B. 3,032 ft.; C.O.

Amon G. Carter No. 2 Elliott, C NE NW sec. 22-22-37. Drlg. 3,480 ft.
Magnolia Pet. Co. No. 1 State G, NW NW NE sec. 24-17-34. S.O. 4,450-51 ft.; S.D. for csg.
Empire O. & R. Co. & Repollo Oil Co. No. 1 Brunson, NW NW SE sec. 4-22-37. T.D. 3,600 ft.; to deepen.
Anderson-Prichard Oil Corp. No. 2 Carlson, C SW NW sec. 21-25-37. T.D. 2,925 ft.; C.O. after shot.
Getty Oil Co. No. 1 Etz, C NE NE sec. 12-21-32. Wildcat; S.D. for repairs 1,680 ft.
Culberson-Irwin & Stovall No. 3 Stuart, NE SE SW sec. 10-25-37. Cellar and pits.
Continental Oil Co. No. 1 Wantz, C SW SW sec. 21-21-37. Drlg. 3,674 ft.
Maljamar Oil & Gas Co. No. 8 Baish, C SW NW sec. 21-17-32. Bldg. rig.
Mid-Continent Pet. Corp. No. 1 Greer, sec. 21-22-36. Drlg. 1,253 ft.
Ohio Oil Co. No. 5 State-McDonald, sec. 16-22-36. Drlg. 1,690 ft.
Stanolind O. & G. Co. No. 1 Meyers, sec. 22-24-37. T.D. 850 ft.; to run csg.
Texas Co. No. 1 Alexander, sec. 5-21-37. T.D. 120 ft.; W.O.C.
Repollo Oil Co. No. 2 Boyd, sec. 23-22-37. T.D. 3,700 ft.; testing.
El Paso Natural Gas Co. No. 2 Harrison, C NW NW sec. 29-24-37. T.D. 2,844 ft.; to kill well.
El Paso Natural Gas Co. No. 1 Harrison, C NW NW sec. 7-25-37. Drlg. 2,675 ft.
Continental Oil Co. No. 3-A-19 Eaves, C N half NW SW sec. 9-26-37. Drlg. 2,525 ft.
Sun Oil Co. No. 2 Stewart, C SW NE sec. 15-25-37. Loc.
Tide Water Oil Co. No. 2 Walden, C SW NE sec. 21-22-37. Drlg. 70 ft.
Continental Oil Co. No. 1 Skaggs Permit, C NE SE sec. 24-20-37. Wildcat.; M.I.M.
Tide Water Associated Oil Co. No. 2 Walden, C SW NE sec. 21-22-37. Cellar and pits.
Shell Pet. Corp. No. 2 Black, C SW SE sec. 21-24-37. Rigging up machine.
Texas Co. No. 3 Sheppard B, SW NE NE sec. 5-26-37. Drlg. 440 ft.

Eddy County

Fred Brainard No. 1 Berry, C E½ NW NW sec. 23-17-27. T.D. 2,075 ft.; fishing.
Etz Bros. No. 3 State, sec. 16-17-30. T.D. 3,252 ft.; S.D. for csg.
Hammond et al No. 1 State, SW SE SW sec. 15-27-28. T.D. 1,967 ft.; testing.
McGinley & Harwell No. 7 Mann, SW cor. 4-18-27. Drlg. 1,375 ft.
Clint Murchison et al No. 1 State A, C NE SW sec. 16-17-31. Drlg. 3,370 ft.
Premier Pet. Co. No. 1 McIntyre G, NW NW NE sec. 21-17-30. Drlg. 3,234 ft.
Flynn, Welch & Yates No. 75 State, C E½ SE SE sec. 10-19-28. T.D. 2,135 ft.; S.D.O.
Flynn, Welch & Yates No. 3 Gissler, SW SE SW sec. 14-17-30. T.D. 2,943 ft.; set 6⅝-in. csg.; W.O.C.
Adams et al No. 1 Page, sec. 15-21-18. Wildcat; machine.
Republic Prod. Co. No. 7 Russell A, NW SE NW sec. 18-17-31. Rigging up standard tools.
Red Lakes Oil Co. No. 8 State, SE NW SW sec. 22-17-28. Drlg. 215 ft.
Republic Prod. Co. No. 3 Robinson Permit, C NE NE sec. 27-17-29. Cellar and pits.
Neil H. Wills No. 1 Colglazier Permit, C NW NE sec. 20-20-30. T.D. 70 ft.; S.D.O.
Barnsdall Oil Co. No. 5 Dodd, sec. 22-17-29. Rigging up machine.
Flint Prod. Co. No. 1 Flint, sec. 14-17-30. Drlg. 2,926 ft.

Roosevelt County

Clovis Corp. No. 2 Wilmes, C SE NE sec. 17-2s-30e. T.D. 1,410 ft.; S.D.
Maxwell, Crandall & Osmond No. 1 Williamson, C NW NW sec. 7-8s-36e. Wildcat; T.D. 4,827 ft.; P.B. 4,814 ft.; C.O.
Wirt Franklin and Flynn, Welch & Yates No. 1 Catts, C NW NW sec. 28-3n-30e. T.D. 4,290 ft.; S.D. for repairs.

Hobbs Field

Stanolind O. & G. Co. No. 30-X Capps, SE sec. 3-19-38. Bldg. derrick.

Otero County

George Muldey No. 1 State, SW cor. sec. 11-25-8e. Spudded.
O. K. Hearte No. 1 Hattie Evans, NW NW SW sec. 22-24-12. O.W.D.D.; wildcat; T.D. 1,605 ft.; underreaming.

NORTHWEST NEW MEXICO

Bernalillo County

Norrins Realty Co., Inc., No. 2 North Albuquerque, SE NW NW sec. 19-11n-4e. Drlg. 2,950 ft. in hd. gray sd.

McKinley County

The Red Mountain Oil & Gas Co. No. 1 State, SW NW SW (cor.) section 21-20n-9w, Red Mountain district, was abandoned at 175 feet.

S. Dysart No. 1 Bouten, NW NE sec. 14-14n-10w. S.O. 1,390 ft. C.D. 1,490 ft.; cmtd. 12½-in. 1,060 ft.

San Juan County

The Kutz Canon Oil & Gas Co. No. 1 Day, SW cor. section 20-28n-10w, Kutz Canon district, reported a completion recently after plugging back from 4,400 feet to the Picture Cliff at 2,110 feet, gauged 2,850,000 feet per day.

R. R. Burke No. 3 Government, NW NW NE section 18-21n-13w, Stoney Butte district, was abandoned at 395 feet.

Sanford B. Bashaw No. 2 Stallings, SW NW NW sec. 2-29n-16w. Drlg. 1,067 ft.
Angel Peak Oil Co. No. 7 Govt., Lot 2, sec. 11-28-11w. S.D. 1,160 ft.
Jack Amenda No. 4 Hart, NW NE SW sec. 25-30n-12w. Drlg. 1,540 ft.

Torrance County

J. E. Williams No. 1 Ashcraft, NE NW SE section 22-4n-12e, southwest of Vaughn, was abandoned at 450 feet.

Valencia County

Pres-sel Dev. Co. No. 1 Morris, NE SW SW section 30-12n-10w, was abandoned at 625 feet.

COLORADO

Archuleta County

Archuleta Oil & Gas Co. No. 1 Reeder, SW SE SW sec. 24-33n-2e. T.D. 1,185 ft.; prep. to resume.

Jackson County

Colorado Oil Ref. Co. No. 1 North Park Coal Co., NW NW sec. 18-9n-78w. S.D. 2,700 ft.

Kiowa County

Gulf Oil Corp. No. 1 Riser-Union Pacific, C SW NE sec. 1-17n-50w. Drlg. 4,790 ft. in L. and sh.

LaPlata County

Detroit Oil Association No. 1, NW SW sec. 9-35n-12w. S.D. indef. at 3,397 ft.
McGarr Pet. Co. No. 1 Pinon Mesa Land Co., CSL NE NE sec. 34-33n-12w. Cmtd. 6-in. at 3,450 ft.; D.D. to 3,680 ft.; S.D.

Las Animas County

Divided Oil & Refrs., Inc., No. 1 Hollenback, C NW SE sec. 12-33s-60w. S.D. 130 ft.; weather (loc. cor.).
Garcia Corp. No. 1 McClung, NE NW SE sec. 19-33s-61. S.D. 1,045 ft. for 15½-in.

Lincoln County

Consolidated Smelting & Metals Co. No. 1 Hancock, NE NE SW sec. 7-17-62. T.D. 2,096 ft.; drlg. up baller.

Moffat County

Anderson-Kerr Drlg. Co. et al No. 1 Govt., C SE SE sec. 19-9n-99w. Spd. Jan. 19 in 20-in. hole; cable tools.
Mountain Fuel Supply Co. No. 1 J. C. Donnell, C SE NE sec. 31-12n-97. Rig; S.D. until spring.
Mountain Fuel Supply Co. No. 1 Stewart, C SW SW sec. 31-12n-97w. Drlg. 2,915 ft.
Mountain Fuel Supply Co. No. 1 Kuykendall, NE NE SE sec. 22-12n-100. T.D. 2,790 ft.; P.B. to 2,537 ft.; cmtd. 4½-in. at 2,495 ft.; S.D. for winter.

Morgan County

Swisher et al No. 1 Lunt, SE cor. sec. 3-4n-60w. Resumed; T.D. 1,718 ft.; C.O. to test S.O.

Park County

South Park Oil Co. No. 1 Lemar, NE NE SE sec. 34-11s-75. Drlg. 3,615 ft.
South Park Oil Co. No. 1 State, SE NE SW sec. 16-11s-75w. C.O. at 5,705 ft.

WYOMING

The Standard Oil Co. of California, which has been conducting considerable exploration and development work in the Rocky Mountain area for some time through its subsidiary, the California Co. is preparing to expand its marketing facilities into this territory. F. W. Silsley, formerly sales superintendent at Oakland, Calif., has opened headquarters at Cheyenne. For the present the company will confine its operations to the wholesale marketing of petroleum products, and will obtain its supplies from the Consolidated Oil Corp. refinery at Parco, Wyo. This is looked upon as a preliminary step to the construction of a refinery to process the company's crude from the Medicine Bow, Quealy, and other fields in the Rocky Mountain area and the retailing of its products. State organizations are being formed in Colorado, Montana, North Dakota and South Dakota. It has been expected for some time that the company would enter this territory on a large scale when it had developed sufficient crude reserves to warrant the construction of a refinery and retail outlet.

Albany County

Murphy Oil Co. No. 5 Holst, SE NE SE sec. 13-17n-77. T.D. 3,764 ft.; cmtd. 7-in. at 3,670 ft.
Hal Blakeman No. 1 Chapple, C NE NW sec. 31-21-76. S.D. 1,680 ft.
Murphy Oil Co. No. 6 Holst, NW NE SE sec. 13-17n-77. Spudding.

Big Horn County

An additional market for crude from the Byron-Garland fields is expected to result from a deal whereby the Yale Oil Corp., which operates a refinery and cracking plant at Billings, Mont., has acquired control of the Lovell Refining Co. plant at Lovell, 6 miles east of the field. The refinery was reconditioned last year and has been operating on crude from the field. The laying of an 8-inch line from the Stock Oil Co. wells to Lovell is now under way. A 3-inch line which formerly was used for oil, is being converted into a gas line and will be buried in the same ditch with the new oil line. The Yale Oil Corp. is reported to be a heavy stockholder in the Stock Oil Co. which has developed production in the field. The Lovell plant will take off the tops and the residue will be used for road oil and for cracking in the Billings plant.

One new operation is getting under way in the Byron-Garland field in the Ohio Oil Co. No. 1 Baker-Byron.

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CLEVELANDS

Ohio Oil Co. No. 1 Baker-Byron, SE NW sec. 23-56n-97w. Bldg. drk. (first report).
Stock Oil Co. No. 1 Allen, Lot 52, sec. 32-46n-97. T.D. 3,825 ft.; wtr. from No. 1-B Allen has extinguished fires from craters; gas flow reduced to 6,000,000 ft. per day.
Stock Oil Co. No. 1-B Allen, Lot 52, sec. 32-46n-97. T.D. 3,800 ft.; pmpg. wtr. into No. 1 Allen.
Ohio Oil Co. No. 1 State, NE cor. Lot 38, sec. 36-46n-97. Drlg. 4,533 ft.
Taylor Oil Co. No. 1 Robinson, SW SW NW sec. 34-56n-97. S.D. 3,030 ft.
Peay Oil Co. No. 1 Denjo Hr., 43-C, sec. 15-55n-87w. S.D. 3,930 ft.; C.O.
Peter Evanoff et al No. 1 McAllester, NW NE SE sec. 9-55n-87. S.D. 3,015 ft.; will run 8⅝-in. and go to Madison.
J. W. Bales No. 1 Parker, C SW SW sec. 23-49n-89w. S.D. 1,010 ft.; bad weather.

Carbon County

Rumors were widely circulated and published the past week that a pipe line is to be built from the Medicine Bow and Allen Lake fields in Carbon County, to Fort Collins, Colo., to pipe natural gas from those fields to cities and towns in northern Colorado and to Cheyenne, Wyo. All companies most likely to be involved in such a deal deny that they have been approached or that any negotiations are in progress and the general opinion is that a trial balloon has been sent up by somebody to see where it will land. The Ohio Oil Co. and the California Co. control the Medicine Bow field. The discovery well had 81,000,000 feet of gas a day in the Upper Sundance and other wells have shown large gas reserves. The Medicine Bow Oil Co. recently drilled in a 25,000,000-foot gasser at Allen Lake.

In 1928 the Colorado Interstate Gas Co. built a trunk line from the Amarillo field in Texas to Denver. The Colorado-Wyoming Gas Co., a subsidiary of the Public Service Co. (Cities Service) of Colorado, built a line from the Wellington field north of Fort Collins to Cheyenne, Wyo., where the same interests control the distributing company, the Cheyenne Light, Fuel & Power Co. When the Wellington gas reserve began to go down a connection between the Texas line and the line from Fort Collins to Cheyenne was built by the Colorado-Wyoming Gas Co. and part of the supply of gas now comes from Texas. The situation is one out of which might logically grow some important developments. The owners of the Wyoming gas naturally desire a market. The Public Service Co. of Colorado might be equally pleased to have a supply of gas available in the event any emergency break should occur in the supply from Texas. By building to Fort Collins, the discussed line would do away with the necessity of negotiating the big Sherman Hill grade between Laramie and Cheyenne and at the same time it would tie into the system at a good point to serve all of northern Colorado as well as the capital of Wyoming. It appears to be a feasible layout if some of the interests directly concerned show the temerity to start negotiations.

Ohio Oil Co.-California Co. No. 2 Kyle, C SE SE sec. 24-21n-79w. R.U.R.
Ohio Oil Co.-California Co. No. 4 Union Pacific, C SW SW sec. 25-21n-79w. R.U.R.
Ohio Oil Co. No. 7 H.&C., C NW sec. 2-19-78. S.D. 4,734 ft. in r.b. for repairs.
General Pet. Corp. No. 1 Union Pacific, SW NW sec. 19-48w. P.B. from 5,557 ft. to 3,050 ft. with 8⅝-in. set at 2,900 ft. to test oil showings in sh.

Converse County

Chadron-Osage Oil Co. No. 1 State, SW SW sec. 16-32n-69w. S.D. 2,050 ft.; may install rotary.
Wyoming Southern Oil Co. No. 2 Salisbury, NE NW SE sec. 27-32n-69w. S.D. 336 ft. acct. weather.

Campbell County

C. J. Shearin et al No. 1 Rhodes, NE SE SW sec. 21-49n-74. S.D. 191 ft.

Fremont County

C. E. Nelson No. 2 Enos, SW NE SW sec. 27-2n-1w. Drlg. 1,012 ft.
Tropic Oil Co. No. 1 Govt., C SE SW sec. 34-27n-90w. Drlg. 3,166 ft.; 4½-in. at 3,145 ft.
Sinclair-Wyoming Oil Co. No. 2-C Muskrat, NE SW SW sec. 1-32n-92w. T.D. 7,293 ft.; S.D. for winter with H.F. oil.

Goshen County

Ohio Oil Co. No. 1 Red Cloud Cattle Co., NW NE NW sec. 28-29n-62w. Drlg. 206 ft.; 12½-in. cmtd. 184 ft.

Laramie County

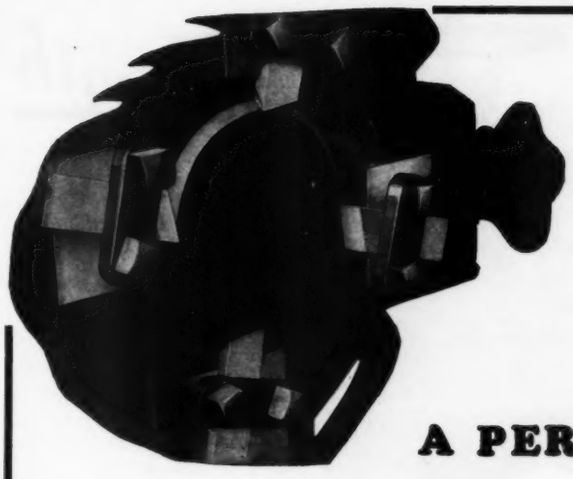
Amerada Pet. Corp. No. 1 Morton, C SW SW sec. 13-13n-68. Drlg. 8,558 ft. in sdy. sh.

Lincoln County

H. M. Eller et al No. 3 Govt., NE SE SW sec. 32-19n-116w. T.D. 610 ft.; prep. to skid rig to offset loc.
Place Oil Co. No. 1 Davis per., SE cor. sec. 9-26n-113. T.D. 680 ft.; rng. 10-in.
Senrab Oil Co. No. 3 Govt., CSL SE NW sec. 10-36n-113w. S.D. 1,020 ft.

Natrona County

Western Producers, Inc., No. 1 Govt., NW SW SE sec. 5-39n-78. Drlg. 631 ft.



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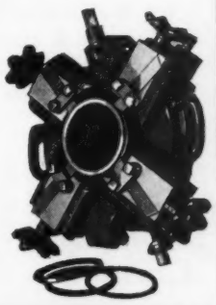

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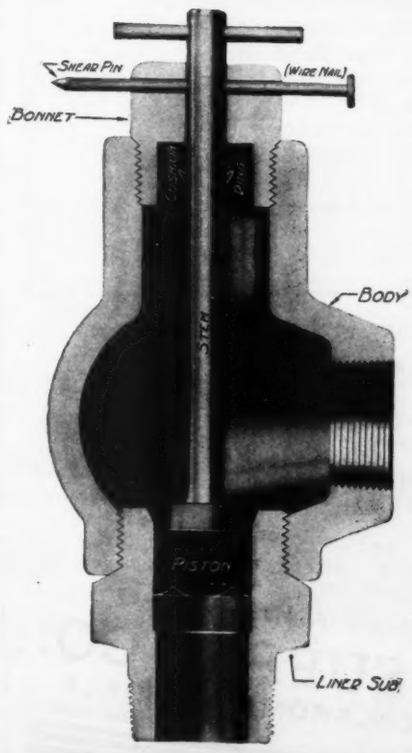

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Summit Oil Co. No. 1 Trevett, NW cor. sec. 21-33n-90w. Resumed; drlg. 1,861 ft.

Niobrara County

Petroleum engineers, including C. O. Lavington, of the Continental Oil Co., and A. W. Buell, independent practicing engineer, assisted by the representatives of the U. S. Geological Survey at Casper and the Bureau of Mines at Laramie, are making a detail study of bottom-hole pressures and gas-oil ratios for Lance Creek to work out the most practical method to produce and obtain the ultimate maximum recovery from the field. The report is expected to be finished within six months. A preliminary report was considered by the proration committee for the field, of which R. S. Shannon, of the Continental Oil Co. is chairman, at a recent meeting. At this meeting it was decided for the present to base top allowables on the basis of acreage rather than potentials and this was set at 435 bbls. per 40-acre unit. In this manner it is expected that drilling will be held down to one well to the unit and do away with overdrilling. Present runs are 12,000 bbls. per day, of which 40 per cent each are allocated to the Ohio and Continental companies and 20 per cent to the Argo Oil Co. Of 33 wells on production 26 can make the allowable, or more, and 7 make less than the top.

Three Lance Creek wells are near completions in the basal Sundance. J. M. Huber Corp. No. 2 Joss, an edge well, swabbed 60 bbls. of fluid in two hours from the basal Sundance at 3,974-89 feet and then went dead. It is rigging up for pumping test. The Argo Oil Co. No. 3 Ford, an outside well on the north, topped the basal Sundance at 3,973 feet and showed saturation. A drill stem test at 3,980 feet showed 400 feet of fluid in 30 minutes. It was then deepened to 3,990 feet, where oil rose 700 feet, and is running a drill stem test. The Continental Oil Co. No. 5-A Schuricht, drilled and cored from 3,562 to 3,588 feet and recovered saturated cores at 3,570-78 and 3,580-85 feet.

J. M. Huber Corp. No. 1 Midwest, SE SE SW sec. 27-36n-65w. Dismantling old equipment and prep. to install rotary to deepen from 3,540 feet to the Sundance.
Argo Oil Co. No. 3 Ford, SW SW NW sec. 33-36n-65w. T.D. 3,980 ft.; testing.
Bay-Elwell No. 1 Joss, C SE SE NW sec. 1-34n-66w. S.D.O. 2,324 ft.; hole full of water.
Continental Oil Co. No. 5-A Schuricht, C NW SW sec. 5-35n-65w. Drlg. 3,585 ft.
Holly Dev. Co. No. 1 Novick, NE SE SW sec. 6-35n-65. T.D. 3,578 ft.; drlg. 3,450 ft. in new hole.
Lewis Gokel No. 1, NE SE NW sec. 31-35n-62w. Drlg. 970 ft.
J. M. Huber Corp. No. 2 Joss, NE NE SW sec. 6-35n-65. T.D. 3,999 ft.; testing.
Ohio Oil Co. No. 5 Leo OPC-16, NW NW SW sec. 25-36n-65w. Rig.
Ohio Oil Co. No. 7 Putnam, NE NE SW sec. 33-36n-65w. Drlg. 1,860 ft.; 12½-in. cmtd. 165 ft.
Ohio Oil Co. No. 9 Lamb, C SE NW sec. 5-35n-65w. Cr. 4,045 ft.
Riggs Oil Co. No. 2 Spaugh, SE SW SW sec. 32-34n-65w. S.D. 1,032 ft. for winter.
Chester Oil Co. No. 1 fee, NE NE NE sec. 14-39n-61. Drlg. 1,036 ft.

Park County

General Pet. Corp. No. 1 Govt., NW NW NW sec. 33-47-100. T.D. 5,660 ft.; fsg. D.P.

Platte County

Dividend O. & R. Co., Inc., No. 1, CSL NW SW sec. 17-24n-66. Drlg. 2,485 ft.

Sheridan County

Beaver Creek Oil Co. No. 1 Allison, SW SE sec. 15-55-85. S.D. 3,200 ft.

Washakie County

Nystrom & Smoot No. 4 State, CEL NE NE sec. 36-44n-91w. T.D. 1,617 ft.; S.O. 1,582 ft.; tstg.
Wood-Callahan Oil Co., Ltd., No. 1 Keye, NE NE NW sec. 25-48n-91w. T.D. 1,831 ft.; S.O.; rng. 8¼-in.

Weston County

Conray Oil Corp. No. 2 Govt., SE SE NW sec. 7-41n-60w. Cmtd. 10-in. at 588 ft.; W.O.C.

MONTANA

Big Horn County

Daniels Pet. Co. No. 1 May, C SE SE sec. 13-1s-33e. T.D. 3,840 ft.; prep. to test.

Cascade County

C. Leonard Smith No. 1-A Smith-Schwingle, NE NE SW sec. 14-22n-2e. S.D. 620 (C.D.) ft. in top of Dakota for winter.

Carbon County

East Bridge O. & G. Co. No. 1 CSL SE SE sec. 23-6s-23e. S.D. 1,477 ft.; rng. 8¼-in. to bottom; Dakota at 1,428-32 ft.; dry.
Ohio Oil Co. No. 1 Northern Pacific, SE NE SW sec. 11-7n-21. T.D. 5,772 ft.; tstg.
Miracle Oil Co. No. 2 Blue Creek, CWL NE NE sec. 5-6s-23e. Drlg. 1,260 ft.; prep. to run 8¼-in.
Henderson Prod. Co. No. 1-H-11 Elk. 11, SE SE NW sec. 35-9s-23e. S.D. 810 ft.; weather.

Fallon County

Montana-Dakota Utilities No. 2 Warren No. 1, Unit 5, C SW sec. 23-8n-59e. T.D. 6,400 ft.; fsg. frozen D.P.

Montana-Dakota Utilities Co. No. 3 Smith No. 1, Unit 8, C SE NW sec. 8-4n-62e. T.D. 6,765 ft.; prep. to test.

Fergus County

Judith Op. Co. No. 2 Govt., CWL NW NE sec. 35-22n-17e. S.D. 3,180 ft.
Emmons et al No. 4 Govt., SW cor. sec. 3-21n-18e. S.D. 432 ft. for winter.
Emmons et al No. 5 Govt., SW cor. sec. 24-22n-18e. Drlg. 335 ft.
O. B. Canfield No. 1 Govt., CEL SE NE sec. 21-17n-24e Drlg. 532 ft. Colo. sh. (first report).

Glacier County

Cut Bank had no completions and one new location. The Glacier Production Co. No. 1 Federal Land Bank, C SW SW section 30-34n-5w, reported a completion last week, but not tested, swabbed 92 bbls. first 24 hours from the pay at 2,845-68 feet. It was then shot with 25 quarts and then swabbed 80 bbls.

Dakota-Montana Oil Co. No. 1 Tribal 136, C NE NE sec. 15-34n-6w. Drlg. 2,100 ft.
Glacier Prod. Co. No. 1 Abraham, C SW SE sec. 19-34n-5w. Cellar and sump. (first report).
Glacier Prod. Co. No. 1 Williams, C SW SE sec. 21-33n-5w. S.D. 370 ft.; weather.
Wm. Hanlon, Agt., No. 1 All.-127, C SE NE sec. 12-32n-6w. Cmtd. 7-in. at 2,950 ft.; drlg. plug.
Hannah-Porter Co. No. 2 All.-130, C NE SW sec. 6-32n-5w. Drlg. 2,700 ft.
Vera Johnson No. 1 Tribal-118, C SW SW sec. 1-32n-6w. S.D. 2,900 ft. for 8¾-in.
Dan Whetstone No. 2 Tribal-117, C NE SW sec. 36-33n-6w. Drlg. 2,950 ft.

Judith Basin County

Fletcher E. Hunt No. 3, NW SE NE sec. 30-14n-15e. Drlg. 1,352 ft. in Kootenai.

Liberty County

Western Natural Gas Co. No. 2 Wallace, NW NW SW sec. 15-37n-4e. Fished out tools; drlg. 1,900 ft.

Park County

Ben W. Ryan et al No. 1 Burgess, SE SW NW sec. 28-2s-11e. Drlg. 606 ft.

Petroleum County

H. C. Rowland No. 1 Kalispel, NE NE SE sec. 35-14n-25e. Drlg. 665 ft.

Phillips County

R. G. Parrant No. 1 Hartman, C NW SE sec. 12-24n-25e. Drlg. 715 ft. in Eagle sd.

Pondera County

Clinch Pet., Ltd., No. 1 Holan, NW SW NW sec. 12-23s-6w. T.D. 2,200 ft.; cleaned up fsg. job and S.D.
Kirk Oil Co. No. 1 Kellogg, SE NW NE sec. 31-28n-4w. S.D. 2,130 ft.

Sheridan County

Cheyenne O. & G. Co. No. 1 Olson, SE SE SE sec. 14-35n-53e. S.D. 2,615 ft.; 500,000 ft. of gas 1,050 ft. and 500,000 ft. at 1,305 ft.; S.O. with 12½-in.

Toole County

All drilling wells in the Kevin-Sunburst field continued shut down on account of the blizzard.

Yellowstone County

R. C. Tarrant No. 2 Mosser, SW SW NE sec. 26-3s-24e. Cmtd. 8¼-in. on top Dakota at 990 ft. and S.D.

UTAH

Grand County

Columbia Crude Corp. No. 1 Rath, NW SW SW sec. 12-35-20e. Cmtd. 7-in. at 2,033 ft. in Paradox; drlg. 2,081 ft.; S.O. in Paradox.
Utah Southern Oil Co. No. 1 Hyde, SE NW NW sec. 33-22s-22e. Drlg. 6,280 ft. in Upper Hermosa.

Emery County

California Co.-Continental Oil Co. No. 1-A Palm, C NW NW sec. 27-23s-11e. S.D. 1,652 ft. for winter.

Daggett County

Mountain Fuel Supply Co. No. 1 Lauzur, CNL NW NW sec. 27-3n-24e. Drk. S.D. for winter.

Utah County

Diamond Oil Co. No. 4 Govt., CNL SE NW sec. 16-3s-5e. T.D. 4,900 ft.; fsg. bit.

Summit County

Longwell Pet. Co. No. 1, SE SW SE sec. 35-3n-5e. T.D. 1,920 ft.; rng. 6⅝-in.

NEBRASKA

Sioux County

J. M. Huber Corp. et al No. 1 Morgan, C SW SW sec. 32-35n-56w. S.D. indef. at 2,700 ft.

Lincoln County

Smith & Wright No. 1 Hansen, C SW NW sec. 24-15n-31w. Drlg. 600 ft. in hard red sdy. sh. (loc. cor.).

Michigan Fields

(Continued from Page 202)

Interest among operators at the January auction of oil and gas leases on state lands centered in Osceola County where 2,941 acres of a total of 9,875 acres put on the block were in Sylvan Township of Osceola. Tracts in Sherman Township of Isabella County, Clayton and Turner Townships of Arenac County, also were sought by bidders. The sale was held in the state capital, Lansing, under the auspices of the lands division of the state conservation department.

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West and North Texas

By L. E. BREDBERG

NORTHWESTERN LOVING HAS NEW DELAWARE SAND FIELD

FORT WORTH, Tex., Jan. 25.—Loving County, the first in the West Texas district to produce non-sulfur (sweet) oil, from the Delaware sand in the Wheat field located in the southern part of the county, has come through with the second field opener for the year and the first wildcat well to show oil and make a producer in 1937 in the district.

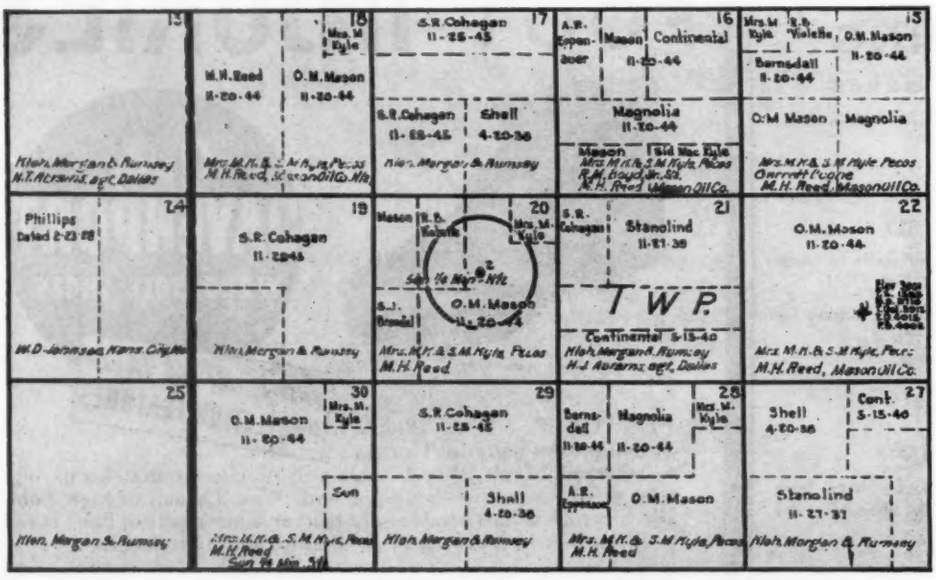
This new pool opener, the Mason Oil Co. No. 2 Kyle, about 2 miles northwest of a dry hole drilled previously by the company, is in section 20, Block 55, Township 1, T.&P. Survey, northwestern Loving County. It is bottomed at 3,910½ feet, with an elevation of 3,053 feet. It topped the gray lime section above the Delaware at 3,670 feet, the Delaware lime at 3,860 feet and the sand at 3,895 feet. It was given a 120-quart nitroglycerin shot at 3,853-98 feet, shooting mostly above and only 3 feet in the pay, possibly to preclude chances of bottom-hole water making its appearance.

The first 17 hours after shooting, and before cleaning the hole, the well flowed 259 bbls. of 40 gravity dark green oil. From noon January 22 to noon January 23 it flowed 269 bbls., with 500,000 feet of gas, and is rated as one of the best wells uncovered in the county, including those in the Wheat field about 13 miles to the southeast. The hole is still being cleaned out and the well is expected to show a higher potential when tubing is run, there being about 1,000 feet of open hole in the well.

The Mason Oil Co., headed by O. M. Mason of New York, has a district office at Pecos. The company is a wholly-owned subsidiary of the Michigan Gas & Oil Co., which operates in the state of Michigan. The subsidiary owns approximately 4,000 acres around its discovery, which is the second test it has drilled in that area, the former, located to the southeast in section 22, same block and survey, was abandoned at a total depth of 4,002 feet after showing 1,500 feet of salt water and 1,500 feet of oil in the Delaware sand. Elevation was 3,001 feet, and it topped the Delaware at 3,912 feet and sand at 3,949 feet. On top of the sand this new discovery is slightly over 100 feet higher than the dry hole, structurally. The first test was made as a result of subsurface, torsion balance and aerial and topographic work, the area said to resemble that of the Wheat field.

Other lease owners around the well are: Continental Oil Co., Magnolia Petroleum Co., Shell Petroleum Corp., Stanolind Oil & Gas Co., and the Argo Royalty Co. The last named company is second to the Mason in amount of protection acreage, both companies also owning much royalty in the vicinity. The discovery well is located 6 or 7 miles north of the Standard of Texas (Paso-Tex) Pipe Line Co.'s 8-inch line from Winkler County to El Paso where the company has a refinery. Whether or not this company will connect with the well is not known at this writing, but it is the only pipe line in the area.

The well may be carried deeper into the pay and then given another shot to increase its potential, although this would be of no present benefit until a pipe line connection or other outlet is furnished. A south offset will be drilled in the near future by the Mason Oil Co. The discovery is expected to stimulate wildcat exploitation for more Delaware sand fields in the area, one already rigging up rotary on location to the southwest in Reeves County and another proposed for that county. Several such tests have been drilled in Reeves County, some of them obtaining good showings from this horizon, but none making commercial producers.



In northwest Loving County, near the New Mexico line, where Mason Oil Co. No. 1 M. Kyle, is showing for another Delaware sand field opener for that county, the first pay in West Texas in which "sweet" oil has been produced.—(Zingery Oil Map Co., Fort Worth)

Yoakum County

The second well to be drilled in the Bennett pool, southeastern Yoakum County, is now being completed by the Texas Pacific Coal & Oil Co. about one-half mile northwest of the discovery, in section 678, Block D, John H. Gibson Survey. It ran 2-inch tubing to the bottom, 5,236 feet, and flowed 56 bbls. in three hours. After acidizing with 5,000 gallons it flowed 357 bbls. of oil, with an estimated 1,000,000 feet of gas, showing for a better well than the discovery, which may be found to be on the eastern flank of the structure as the field is developed.

Extension Wells

York & Harper and others No. 1-B Foster, located in section 8, Block 42, Township 2s, T.&P. Survey, about 1½ miles northeast of the Foster or Odessa field in eastern Ector County, has proved an extension to that field. It swabbed and flowed 429 bbls. of oil in 24 hours while cleaning out after a 410-quart shot at 4,127-4,319 feet. There is but little gas in the well, and it will probably be put on the pump when cleaned out. Total depth was 4,348 feet, but it was plugged back to 4,332 feet before shooting.

Another extensioner to this area, but to the northwest, in section 10, Block 43, Township 2s, T.&P. Survey, is Stanolind Oil & Gas Co. No. 2-B Cowden. It was completed for 229 bbls. after a shot. It topped the pay at 3,965 feet and was bottomed at 4,451 feet. The two wells lengthen the field to about 4 miles from southeast to northwest.

Northern Winkler Well

Proving a much better well than its east offset, which was the discovery in the area about 2 miles northwest of production in Winkler County, Texas, and about the same distance south of production across the state line in Lea County, New Mexico, Adams and Bradley No. 1 Edwards, in section 6, Block B-23, P.S.L. Survey, made an initial production of 735 bbls. when completed at total depth of 2,998 feet. It topped the pay at 2,967 feet. The east offset of Fields and others was a small pumper, but this new well furnishes sufficient proof that Winkler County production will be linked with that of the Lea County area to the north, further extending the trend of production from Ward up through Winkler and into New Mexico. The Sun Oil Co. is now drilling a test, about one-half mile to the west of this new well, and two other locations have been staked in the vicinity.

Another Record

The West Texas district established another record for the number of locations staked in it in any seven-day period. In the past week there were 63 locations reported, or seven more than in the previous week. At the same time 38 wells were completed. Thirty-three were oil producers. Five were dry, all wildcats, three in Jones County, one in Fisher and one in Pecos County.

One of the wildcat locations staked was in section 10, Block A-42, P.S.L. Survey, 1 mile west of the Humble Oil & Refining Co. No. 1 Walker producer south of the Deep Rock pool in Andrews County. One was staked in Howard County. Jones County received four new wildcat locations, with Pecos and Scurry counties each receiving one.

Expected Test

A Delaware sand test is expected to be drilled in section 38, Block 71, P.S.L. Survey, on a block of some 14,000 acres held in Reeves County, on which a farm-out has been obtained from the Continental Oil Co. This will make the second such test to start for this county, one preparing to get under way by Grisham-Hunter, Inc.

NORTH TEXAS DISTRICT

Rapp Drilling Co. and Anderson-Kerr, Inc.

wildcat on the J. R. Singletary lands, in the Charles Quillen Survey, half a mile southeast of Collinsville, Grayson County, has been shut down. It had a showing of oil three weeks ago, and will test a sand which showed some oil at 3,964-70 feet. Bottom of the hole is 3,996 feet. The first sand was topped at 3,837-43 feet, with a 5-foot break, and more sand to 3,863 feet. A liner is to be run and a test made of the sand, which is causing renewed interest to be taken in the area. Another test is expected to be drilled to 4,000 feet on the T. P. Shores 25-acre tract, north of the above Rapp and Anderson-Kerr well. C. M. Beckner and Reagan Clark are named as the parties planning to spud this test within 10 days.

Regardless of inclement weather, operations were carried on at Bryson in Jack County with no let-up. An important location is to be drilled 4 miles north of Jermyn by L. S. Flannary of Longview, on a block of 2,800 acres near the Jack-Young County line, the contract calling for a 4,000-foot hole. This is about a mile from a test drilled several years ago that produced some oil, and is also on the north trend from the Bryson field. It will be put down in section 2,784 on the Fred Warren lands.

PANHANDLE DISTRICT

Two locations for wildcat tests have been staked in the Panhandle district, one on which materials have been moved in. Durham & Cook and others are to drill on the Schappe ranch, in section 57, Block 16, H.&T.C. Survey, in Hardeman County, and Better Black, Inc., on the McLaughlin lands, in section 125, Block 33, H.&T.C. Survey, Hartley County. Both are wildcats.

NORTH TEXAS COMPLETIONS

Archer County

L. T. Burns No. 3 Bridwell A, 904 feet, dry; No. 1 Donahue, 1,360 ft, dry. Golding & Cochran No. 1 Jeske A, 1,191-98 feet, 100 bbls. Hamilton Petroleum Co. No. 2 Purcell, 1,180 feet, dry. C. T. Hedges No. 11 Rogers, 1,317-37 feet, 10 bbls. W. H. Junker No. 4 fee, 1,293 feet, dry. Kimmell & Woofter No. 13 Williams, 568-91 feet, 10 bbls. Kriss & Buzzard No. 2 Perkins, 625 feet, dry. J. Latson No. 1 Petty, 805 feet, dry. Lyon and others No. 1 Inman, 755 feet, dry. Peery, Woody & Young No. 2 Duckworth, 1,418 feet, dry. Rathke Oil Co. No. 3 Meade, 1,442-67 feet, 10 bbls. Whitehill Oil Corp. No. 24 Morrison, 660-68 feet, 15 bbls. Wilson & Ligon No. 1 Turbeville, 1,474 feet, dry.

Clay County

J. M. Tanner No. 4 Rigsby, 340 feet, dry.

Cooke County

United Production Co. No. 4 Trew, 1,122-67 feet, 60 bbls.

Jack County

T. D. Humphrey No. 8 Rankin, 2,964-3,001 feet, 250 bbls.

Montague County

The Texas Co. No. 7 Hinton, 754-85 feet, 40 bbls.

Throckmorton County

Canyon Oil & Gas Co. No. 2 Wright, 366 feet, dry.

Wichita County

L. T. Burns No. 4 Goetze, 1,352 feet, dry. G. W. Cooper No. 44 Waggoner, 1,311-60 feet, 50 bbls. Fain & McGaha No. 1 Griffin, 1,892 feet, dry. W. B. Omohundro No. 1 Cunningham, 2,508 feet, dry.

Young County

W. F. Collins No. 2 Hardy, 642 feet, dry. W. G. Horn No. 2 Gregg, 732 feet, dry. Kimmell Lea & Co. No. 2 Prideaux, 647-58 feet, 10 bbls. Owenwood Pool No. 3 Stewart A, 885 feet, dry. Pitzer West & Lion No. 1 Gathright, 4,155 feet, dry. J. H. Rogers No. 1 Routeon, 789 feet, dry. R. E. Skinner No. 1 Selvage, 633 feet, dry. Worth Oil Co. No. 16 F. M. Cullers, 526-39 feet, 5 bbls.

TEXAS PANHANDLE COMPLETIONS

Gray County

Adams & McGahey No. 7 Morse, 2,540-2,640 feet, shot, 187 bbls. on pump. King Oil Co. No. 9 Archer, 3,165-3,230 feet, shot, 486 bbls. on pump; No. 2 Barrett, 3,190-3,278 feet, shot, 576 bbls. on pump; No. 4 Jackson, 3,180-3,245 feet, shot, 427 bbls. on pump. Magnolia Petroleum Co. No. 9 Haggard, 3,225-3,310 feet, shot, 612 bbls. on pump. Sinclair Prairie Oil Co. No. 3 Smith, 3,178-3,275 feet, shot, 400 bbls. on pump. Ama-Gray Oil Co. No. 2-E Morse, 2,660 feet, 21 bbls. on pump.

Hutchinson County

Means and others No. 1-C Cooper, dry and abandoned 4,075 feet, elevation 3,077 feet.

Moore County

Texoma Natural Gas Co. No. 9 Sneed, 2,485-3,100 feet, 24,685,000 feet gas.

Potter County

Canadian River Gas Co. No. 1-A Bivins, 2,295-2,470 feet, 20,183,000 feet gas.

COMPLETIONS IN WEST TEXAS

Crane County

B. Fields No. 3 Gibbs, 2,272-80 feet, acidized, 678 bbls. Gulf Oil Corp. No. 143 McElroy, 2,725-2,953 feet, 193 bbls. Henderson No. 2-B Hughes, 2,115 feet, acidized, 504 bbls. American Liberty Oil Co. No. 3 Tubbs, 4,260-4,420 feet, acidized, 810 bbls.

Ector County

Landreth Production Co. No. 3-A TXL Ranch, 4,218 feet, plugged back to 4,199 feet, shot, 302 bbls. Shell Petroleum Corp. No. 1 University, 3,560-3,660 feet, shot, 198 bbls. in 19 hours. Stanolind Oil & Gas Co. No. 2-B Cowden, 3,965-4,451 feet, shot, 229 bbls. Manson Oil Co. No. 1 Cummins, 4,195-4,250 feet, acidized, 835 bbls.

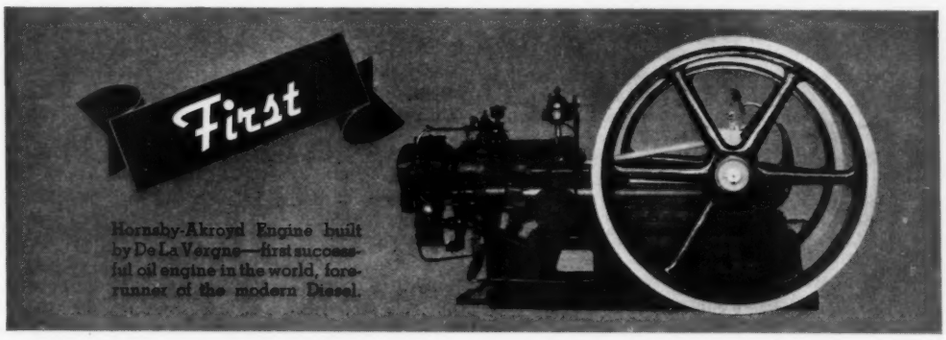
Fisher County

L. A. Long and others No. 1 J. L. Mayberry, dry and abandoned 3,321 feet.

Jones County

Fain-McGaha, Inc., No. 1 Shephard, dry and abandoned 2,260 feet, elevation 1,657 feet, 2 miles east of Hawley. N. H. Martin No. 5 Dorsey,

(Continued on Page 227)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North Louisiana, Arkansas

RODESSA ESTABLISHES NEW PEAK IN DAILY PRODUCTION

By MITCHELL TUCKER

SHREVEPORT, La., Jan. 25.—A new peak daily production of 94,206 bbls. was established for the Rodessa field last week, the increase again coming from the Texas side, which had an average daily output of 38,672 bbls., with 55,534 bbls. from the Louisiana side.

The following tabulation sets out the number of wells and average daily production for the week ending January 19 by companies, showing results of the recent reallocation of production:

Company—	No. wells	Avg. dly. prod.
American Liberty	22	3,955
Arkansas-Louisiana	27	2,419
Magnolia Petroleum Co.	77	22,399
Phillips Petroleum	34	8,709
Standard of Louisiana	54	7,585
United Gas Public Service	186	32,022
Tide Water	16	924
Texas Co.	8	2,606
Others	106	14,114
Totals	510	94,186

The Magnolia Petroleum Co., Phillips Petroleum Co., United Gas Public Sevice Co., and Texas Co. profited from the reallocation of production upon an acreage and bottom-hole pressure basis, while the Arkansas-Louisiana Gas Co., Tide Water, Standard Oil of Louisiana and "others" suffered losses in daily allowable.

Effects of New Conservation Order

The revised schedule of well allowables is now in effect on the Louisiana side of the Rodessa field. This reallocation was necessary to bring the field total to near the 62,500-bbl. figure. Gas production from oil wells under the new schedule amounts to 163,964,400 feet daily, about 75 per cent less than formerly. Seventy-nine wells are classed as gas wells in the new schedule. These are wells whose gas-oil ratios are so high that the value of the gas at 3 cents a thousand feet is greater than the value of oil production at the current market price. Of the oil wells which formerly had an allowable of 225 bbls. each, 14 now have allowables in excess of 500 bbls. daily, 82 in excess of 300 and 119 in excess of 200. Twenty-seven have allowables less than 25 bbls. a day.

Thirteen wells are scheduled for immediate workover, and seven have been shut in until such time as sand separation has been effected.

Reduction of the gas production by the lowering of gas-oil ratio has been reflected in the gasoline production over recent weeks. Total natural and refined gasoline production during the past week amounted to about 1,249,304 gallons, compared with 1,476,158 gallons the previous week, and 1,810,131 gallons the week before.

R. W. Norton No. 1 Payne, SE SE section 27-23-16, south of the surface fault at Rodessa (tilted southward) is receiving growing attention as it drills below 7,600 feet for a thorough exploration of Travis Peak sands which may carry saturation accumulated against the fault. Markers have not yet been announced on this test, but it is believed that the drill-hole cut back into the upthrow side of the structure several hundred feet above present drilling depth.

Marion County

Prospects for obtaining commercial oil production in the Jefferson wildcat test, 14 miles southwest of Rodessa production, were discounted this week as Holcomb & Thomason No. 1 Henderson, R. Bennington Survey, cored ahead through a thin section of barren Dees (6,121 to 6,139 feet) and found the Young oil sand, prominent at Rodessa, entirely missing here. Some geologists do not distinguish between the Dees and Young sands, but the combined section in Rodessa proper is 30 to 50 feet thick. The bit went out of the Dees here into black shale similar to that drilled from the base of the Young to the top of the Pettitt sand in Rodessa. Operators have drilled to 6,350 feet and plan to make a Schlumberger test of the newly drilled section. Should results be unfavorable, the hole will be plugged back, casing set, and test made of gas-distillate showing logged from 5,958 to 5,990 feet.

Arkansas-Louisiana Gas Co. No. 1 Ford, Charles Grayson Survey near Lodi, is drilling below 5,250 feet as a possible 7-mile extension to Rodessa production.

Rodessa Completions

R. W. Norton No. 2 Strake, SW section 16-23-16, flowed 17 bbls. hourly on initial test, one-fourth inch tubing choke, total depth 6,005 feet.

H. L. Hunt No. 1 Shelton, J. Davenport Survey, Cass County, Texas, pumped 100 bbls. oil and 50 bbls. salt water daily, total depth 6,050 feet, plugged back from 6,054 feet.

Magnolia Petroleum Co. No. 1 H. F. Walker, Wilson Robinson Survey, flowed 627 bbls. daily through tubing choke, total depth 6,070 feet.

R. W. Norton No. 4 J. T. Moore, William R. Myers Survey, flowed 495 bbls. daily through one-fourth inch tubing choke, ratio 723 to 1, total depth 5,995 feet.

Ohio Oil Co. No. 9 R. P. Willis, S.F.I.W. Survey No. 1263, flowed 460 bbls. daily through one-fourth inch tubing choke, saturation topped 5,930 feet, total depth 5,990 feet.

Phillips Petroleum Co. No. 2 Chew, Robert Trammel Survey, flowed 300 bbls. in 24 hours, total depth 6,119 feet, plugged back from 6,161 feet.

Texas Co. No. 4 W. M. Hall, Alex Archer Survey, flowed 54 bbls. hourly through one-fourth inch tubing choke, saturation topped 6,010 feet, total depth 6,044 feet.

United Production Co. No. 10 J. T. Stewart Unit, John Collom Survey, flowed 15 bbls. hourly through three-eighths inch tubing choke, total depth 6,045 feet.

United Production Co. No. 3 Tyson Unit, J. H. Rives Survey, completed as gas well, approximate gauge 21,000,000 feet, total depth 6,158 feet.

Bossier Parish

Public hearing will be held February 12 on the Sligo oil and gas field of Bossier Parish, after which drilling regulations for development of the new oil-producing area will be issued by the Louisiana Department of Conservation.

Arkansas-Louisiana Gas Co. is preparing to test its No. 1 W. M. Davis, NW NE NW section 8-17-11, oil test on the northeastern flank of the Sligo gas field, after setting 7-inch at top of the porous Pettitt sand, 5,156 feet. Total depth now 5,177 feet.

Caddo Parish

Gulf Refining Co. No. 1 E. P. Hatcher, SW SE section 11-17-15, highly regarded Cross Lake wildcat, topped the Lower Marine beds of the Travis Peak (Trinity) at 8,240 feet and at 8,307 feet is running protective string of 7-inch pipe.

DeSoto Parish

South of the Spider district, Vaughn Production Co. No. 1 Sample, section 24-11-14, had massive anhydrite from 4,633 feet to 4,854 feet, and made drillstem tests in upper portion of Lower Glen Rose, 4,955-4,975 feet, where 39 joints of salt water were evidenced in five minutes. Drilling continues below 5,245 feet.

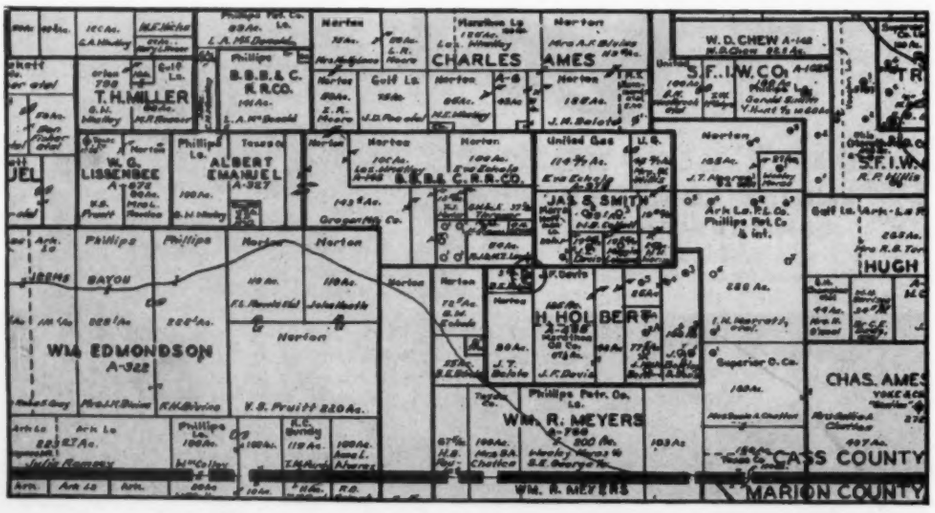
Perla Oil Co. No. 1 Joyner, SE NW SW section 28-11-12, reported showing of oil and gas in what was tentatively termed Woodbine, topped at 2,893 feet, and 8¼-inch pipe has been set at 2,885 feet preparatory to testing; total depth, 2,897 feet.

LaSalle Parish

Arkansas Fuel Oil Co. No. 13-B Urania, NW NE NE section 18-10-2e, was completed on air-lift, flowing 200 bbls. oil, 10 per cent water, total depth 1,518 feet, as additional development of the Urania field.

Webster Parish

Standard Oil Co. exploratory test southeast of the Sibley gas-distillate pool, No. 1 E. Fudicker, NW section 2-17n-9w, took drillstem test 5,880 feet to 5,940 feet and tested 2,250 feet of salt water



Location of W. F. Lacey and others No. 1 J. Lewis, 1 mile extension to Rodessa field southwest in Cass County.—(Walter E. Wylie, Maps, Shreveport)

in 16 minutes through top and bottom chokes. Coring continues below 6,059 feet.

Ohio Oil Co. made the second completion in the Bodcaw sand at the 8,100-foot level at Cotton Valley, its No. 1 R. M. Coyle, NE SE section 22-21-10, gauging 228 bbls. of 61-gravity distillate and 2,500,000 feet of gas in 24 hours, one-fourth inch tubing choke, casing pressure 3,500 pounds, tubing pressure 3,400 pounds, total depth 8,194 feet.

Magnolia Petroleum Co. No. 5 Ira Cox, section 23-21-10, passed up the Bodcaw sand showing of gas and distillate and is now coring below 8,465 feet for a test of the deeper showings obtained in discovery well at Cotton Valley.

Richland Parish

Gulf Refining Co.'s proposed 10,000-foot test of the Richland gas structure, No. 15 R. R. Rhymes, section 32-17-6e, passed the 9,000-foot mark last week, and now explores below 9,020 feet.

Union Parish

Interstate Natural Gas Co. completed two good gas wells in the northwestern portion of Monroe gas field, No. 61 fee, flowing 15,000,000 feet daily and No. 62 fee 24,500,000 feet, average rock pressure 807 pounds.

Estimated Daily Production

Estimated daily gross production all companies week ending January 22, 1937:

NORTH LOUISIANA

Bellevue	710
Caddo light	4,015
Caddo heavy	2,590
Converse	840
Cotton Valley heavy	285
Cotton Valley light	535
De Soto and Red River	1,380
Elm Grove	340
Haynesville	3,375
Holly	120
Homer	2,545
Pleasant Hill	135
Rodessa	55,535
Sarepta-Carterville	390
Sligo	405
Urania	2,760
Zwolle	825
Total	76,785

SOUTH ARKANSAS

Champagnolle	1,950
El Dorado	2,010
Lisbon	275
Miller County	520
Nevada	760
Smackover light	2,070
Smackover heavy	17,430
Stephens	580
Troy	200
Urbana	1,565
Total	27,360

Texas side of Rodessa field, 38,670 bbls. daily.

ARKANSAS

Columbia County

Southern States Gas Co. No. 1 Piney Woods Lumber Co. SW NE NW section 10-20-22, has been abandoned at total depth of 1,924 feet, after expiration of lease.

Little River County

Roberts and others No. 1 Hall, section 5-14-36, has been abandoned at 2,100 feet, after deepening from the formerly abandoned depth of 1,410 feet, and finding no showings of oil or gas.

Nevada County

Benedum & Trees No. 1 Block, NE NE SE section 9-14-20, is coring below 3,650 feet for a deep exploratory test of the Troy structure. Other operations there have been temporarily suspended due to high water.

EAST TEXAS (Border Counties)

Harrison County

In the northeast portion of Harrison County a new operation to test the Tokio sand at about 2,400 feet has been staked by W. F. Bridewell in the Baker Survey. Location is one-quarter mile northwest of the Glen Rose failure drilled by Overtex Oil Co., which reported good showings from the Tokio.

Shelby County

Mulroy & Curtin No. 1 C. Hayden, in the D. F. Yordt Survey of Shelby County, has been plugged and abandoned at 3,182 feet as dry. Top of Austin chalk was logged here at 2,696 feet, Georgetown lime 3,054 feet to 3,151 feet.

H. A. Stebbinger and others No. 2 Pickering Lumber Co., Hanson Survey, located about one-quarter mile south of their No. 1 wet gas discovery near Joaquin, is drilling below 2,000 feet.

Panola County

Arkansas Fuel Oil Co., United Gas Public Service Co. and Seaboard Oil Co. continue their leasing activities around the Bethany area, where nearly 5,000 acres have been assembled in recent weeks.

MISSISSIPPI

Lamar County

Sun Oil Co. and others No. 1 Scanlan-Semmes, SW NE 28-4n-15w, has drilled in solid salt from 2,522 feet to 4,000 feet, where operators plan to abandon the test. This test which proves the presence of a pronounced salt dome, will stimulate other drilling on the dome flank in search of oil, and leasing of lands in this vicinity is active.

Eastern Fields

(Continued from Page 192)

1,600 feet; Berea, 2,069-89 feet; Brown shale, 2,975-3,258 feet, with 380,000 feet of gas at 3,000-50 feet. In Guyandotte district, Lee Sansom and others completed a second test on the F. L. Whitaker farm at 2,646 feet. Big lime was at 1,025-1,193 feet; Big Injun, 1,290-1,325 feet; Berea, 1,811-25 feet; Brown shale, 2,445-2,640 feet, with 134,400 feet of gas at 2,490 feet.

In Calhoun County, Jeff Miller and others completed a test on the Lona Wier farm in Washington district in the Big Injun sand as a good gas well. Big lime was at 2,002-2,102 feet; Big Injun, 2,102 feet, with 1,480,000 feet of gas, naturally, at 2,107-20 feet, which was improved to 2,797,000 feet a day after shot.

In Marion County, S. N. Elliott completed a test on the A. Z. Riggs farm in Mannington district at 2,812 feet, the Gordon sand, gauging 425,000 feet. The Pittsburgh Coal is at 588 feet.

In Ritchie County, Smith & Hendershot completed a test on the Mary Phillips farm in Grant district in the Injun sand at 1,635 feet, gauging 149,000 feet. In this district, New York Petroleum Co. completed deepening No. 4 L. Moss in the Injun sand, depth 2,112 feet, gauging 100,000 feet. In Clay, district H. J. Scott and others completed No. 2 J. P. Strickler heirs in the Injun sand at 1,940 feet, gauging 94,000 feet.

In Tyler County, Howard Hall and others drilled a test on the John Fonner farm in Union district through the Maxon sand to a depth of 1,833 feet, and it was dry and is being abandoned.

In Roane County, Godfrey L. Cabot, Inc., drilled a test on the J. B. McQuain farm in Geary district to 1,652 feet, through the Maxon sand, and it was dry.

In Upshur County, L. S. Goff Oil & Gas Co. drilled a test on the O. B. Phillips farm in Mead district to 2,350 feet and will abandon it with no showing.

New Operations

In Cabell County, Smith Creek Gas Co. and Leonard Paugh have a location on the Joseph Childers farm in McComas district. In Grant district, R. H. Adkins, trustee, has a location on the B. W. Boster farm.

In Calhoun County, Godfrey L. Cabot, Inc., has a location for No. 3 J. M. Bennett heirs in Sheridan district. In this district the same operator will drill No. 2 Mary V. Bunner. In Lee district this operator has a rig standing for No. 4 L. R. Harless. In Center district, J. H. Ferrell and others are down 1,700 feet on the L. B. Carroll farm.

In Doddridge County, Columbian Carbon Co. has a location on the Lewis Maxwell 2,654-acre tract in West Union district, on Arnolds Creek, about halfway between the mouths of Costelo Run and Old House Branch.

In Gilmer County, Carnegie Natural Gas Co. has a location for No. 2 Floyd-Allen in Glenville district. In Jackson County, Boggess & Starcher have a rig on the E. S. Halbert 18-acre tract in Washington district.

In Lincoln County, Sand Creek Gas Co. has a well started on the Philip Hager farm in Harts Creek district. W. C. Kingery is down 1,000 feet on the J. W. Smith farm in Sheridan district.

In Pleasants County, H. F. Simonton, manager, has a location on the C. P. and Delphia O. Simonton farm in Lafayette district and on Rock Run. Lawrence McClure and others are drilling at 770 feet on the Samuel G. Hammett farm in Jefferson district.

South Penn Oil Co. has a location for No. 19 Haught Lambert in Murphy district. Clem S. Morris has a location for No. 2 A. D. Miller, same district. Diamond Supply Co. has a test drilling on the Harrison Wright farm in Union district, at 1,620 feet. Creed Barker has a rig for No. 2 Henry L. Barker, Murphy district.

In Roane County, J. T. Campbell, Marietta, Ohio, has a second test drilling on the W. S. Fouty and others lease in Curtis district. L. C. Young and others have a location on the B. R. and J. R. Fields farm in Harper district.

In Tyler County, Crawford Oil & Gas Co. has a location on the W. L. Michaels farm, 400 acres, in Union district. In Wetzel County, Carnegie Natural Gas Co. has a location on the Clarence Blatt 45 acres, Proctor district, and a test on the Eliza Pogue farm in Church district.

Kansas Fields

(Continued from Page 194)

after acidizing with 4,000 gallons. It topped Mississippi lime at 1,596 feet; had pay at 1,636-40 feet, and was bottomed at 1,641 feet.

Woodson County

Chris L. Sheedy and associates completed a nice producer in Woodson County at No. 3 Lee, SE SW NE section 28-25-14. It had sand at 1,430-69 feet, total depth, shot with 25 quarts and pumped 240 bbls. of oil in 24 hours.

The following new work in Woodson County was reported: Alexander and others No. 1 Dreyer, NW cor. section 25-23-13, machine; Ward McGinnis No. 2 Weidle, SE NE SE section 31-23-15, location; OKO No. 3 Hoagland, C N half NW NE section 2-24-14, rigging up machine; C. L. Sheedy and others No. 4 Lee, SW SE NE section 28-25-14, machine.

Chautauqua County

Sagamore Oil Co. No. 10-A Willson, SE SW NE section 14-33-12, Chautauqua County, had Siliceous lime at 1,873-74 feet, total depth, pumped 20 bbls. of oil in 24 hours, with some water, and was completed. Same operators No. 9-A Willson, SE NW NE section 14-33-12, had Siliceous lime at 1,772-79 feet, total depth, and production was estimated at 18 bbls. of oil daily, completed.

Morrow & Sons No. 1 Floyd, C NE NW section 31-32-11, topped lime at 1,975 feet; had pay at 2,010-22 feet, total depth, and was estimated good for 4 bbls. of oil daily, but was dry and abandoned.

New Operations

I. W. Seigel and others No. 1 Westhusin, NE cor. section 14-9s-17w, was location for a new test in the Westhusin pool, Rooks County.

Polhaums and others No. 4 Leedy, C E half SW section 25-22-9e, Chase County, was drilling at 1,540 feet.

In Harvey County, Shaffer and others No. 1-A Haury, C NE SE section 11-23-2w, was moving in material; Dickey Oil Co. No. 1 Master, NE NE SW section 14-23-2w, was a location.

In Greenwood County, Superior Oil Co. No. 10 Jonas, NW SE SW section 21-23-13e, was drilling at 925 feet; O. V. Paul and others No. 4 Bryden, NW SW SW section 31-25-9, was rigging up machine.

In Kingman County, Skelly Oil Co. No. 3 Interurban Realty Co., C SW section 30-27-10w, was a cellar.

In Butler County, National Refining Co. No. 5 Sutter A, SW SW NE section 1-28-6, was a location.

The only new work in Cowley County was at Roth & Faurot and Texas Co. No. 3 David B, SW NW SE section 35-30-4e, moving in material.

Two new tests in the Wellington pool, Sumner County, were announced. Stelbar Oil Corp. No. 16 Erker, SE SE SW section 33-31-1w, was a location. Same company's No. 2 Rothrock, NE NE NW section 4-32-1w, was a cellar.

East and East Central Texas

By
L. E. BREDBERG

BONUSES AND PREMIUMS ARE PAID FOR EAST TEXAS CRUDE

DALLAS, Tex., Jan. 25.—Of interest to those watching the Talco field, and Trinity tests in East Texas, will be the deep test on the eastern flank of the Van field in Van Zandt County, by the American Liberty Oil Co. and George Greer of Dallas. They have staked location on the J. K. Freeman lands, in the John Walling Survey, near the center of the east side of the field and on the opposite side of the field from a deep hole abandoned by the Pure Oil Co. several years ago. This new test will seek Trinity production.

Another deep test of importance will be that of J. Z. Werby, who has taken over the old hole abandoned by Stroube & Stroube on the S. E. Sutton lands in the M.E.&P. R.R. Survey, about 3 miles east of production in the Talco field, northwestern Titus County, and will carry it down to 6,200 feet, according to contract. This test was previously given a failure at a total depth of 4,510 feet, failing to find production in the Paluxy zone from which wells in the Talco field are producing. This test will be especially interesting to those holding acreage in the field and to the east of the field.

The G. M. W. Oil Co. No. 1 W. T. Edwards, in the northern part of the J. R. Slaughter Survey, about 1 mile southeast of the southeastern producing limits of the Talco field, is being closely watched. It topped Paluxy sand at 4,242 feet and drilled to 4,305 feet, where it was shut down and set pipe, preparatory to completing. It is expected to make a producer and to extend the field.

Eight completions reported in the Talco field this week, seven on the Titus County side and one in Franklin County. Only four new locations were staked in the field.

Three completions were reported in the Sulphur Bluff pool in Hopkins County, the second Paluxy field discovered in East Texas in 1936, located about 18 miles southwest of the Talco field.

Rains Test

The Humble Oil & Refining Co. and Tide Water Oil Co.'s interesting Trinity test in eastern Rains County, on the Easter farm, in the R. Hotchkiss Survey, 5 miles northwest of Alba, is now shut down at 7,700 feet, but may take one more core then abandon unless other companies assist in carrying it deeper. It is now 150 feet below contract depth, and is believed to be in or near the top of the Rodessa zone below the anhydrite section.

The next most interesting and no doubt the most important test in the district is that of the Superior Oil Co. of California on the Paul farm, in the Mary Latham Survey, 4½ miles northeast of Quinlan in Hunt County. It is drilling below 2,750 feet, topping a marker at 1,973 feet. Two other deep tests are preparing to get under way in eastern Hunt County, and another lease play is taking place in that sector with several major companies taking part in it.

EAST TEXAS FIELD

Thirty-eight completions were reported in the East Texas field. Three of the tests overstepped the producing limits of the field and were marked off as failures, one each in Gregg, Rusk and Upshur counties. Five of the completed wells were pumpers, one of which made 10 per cent salt water, and two were swabbers.

Purchasing companies are actively soliciting more connections in the field and some are offering bonuses and paying premiums in order to obtain more oil. Some of the purchasers advise the producers to make their own connections to the purchasing company lines, which often requires only one joint of pipe, or a coupling. In return, the purchasing company pays from 5 to 7 cents per barrel more for the producer's oil. In other cases purchasers are paying an agreed sum per month, ranging up to $25 per month per well for new connections. It is estimated that about 40,000 bbls. of oil per day is being sold on one or another bonus or premium arrangement. It is very difficult to get dependable information as to who are paying the bonuses and premiums but no doubt is felt that they are being handed to producers.

One large purchasing company's representative made the statement that he would "turn hand springs" if he could get 50 or 100 more wells connected for his company, and that he would like to advise paying more for the oil in order to get connections.

EAST TEXAS COMPLETIONS

Gregg County

Arkansas Fuel Oil Co. No. 42 Burnside, 3,484-3,509 feet, 31 bbls. in 15 minutes. Atlantic Refining Co. No. 2 Jones, 3,633-3,750 feet, 86 bbls. per hour. Humble Oil & Refining Co. No. 9-B Johnston, 3,614-24 feet, 75 bbls. per hour. Magnolia Petroleum Co. No. 4 Stone heirs, 3,606-27 feet, 42 bbls. in two hours on pump. Shell Petroleum Corp. No. 27 Richey, 3,559-3,606 feet, 22 bbls. in 22 minutes. Stanolind Oil & Gas Co. No. 16 Jones, 3,540-3,608 feet, 78 bbls. per hour; No. 25-B Lathrop, 3,605-50 feet, 52 bbls. per hour; No. 9 McGredge, 3,528-83 feet, 66 bbls. per hour; No. 10 Meadow, 3,694-3,725 feet, 60 bbls. per hour.

Tide Water Oil Co. No. 16-A Nettleton, 3,474-95 feet, 60 bbls. per hour. J. O. Whittington No. 9 Bumpass, 3,533-33 feet, 40 bbls. in 40 minutes. Bay Oil Corp. No. 5 Godfrey, 3,546-66 feet, 60 bbls. per hour. J. G. Beard No. 16 Elder, dry and abandoned, 3,586 feet. Gulf Oil Corp. No. 91 Hilburn, 3,662-67 feet., 60 bbls. per hour. E. M. Jones No. 3 Crim, 3,524-65 feet, 60 bbls. in 30 hours on swab. Magnolia Petroleum Co. No. 24 Hicks, 3,700-04 feet, 110 bbls. per hour; No. 12 Utzman, 3,497-3,518 feet, 20 bbls. in five hours on pump. Shell Petroleum Corp. No. 60 Watson, 3,531-65 feet, 17 bbls. in 15 minutes. Sun Oil Co. No. 40 Cole, 3,517-42 feet, 63 bbls. per hour. F. L. Thompson No. 10 Hilburn, 3,637-40 feet, 60 bbls. per hour.

H. L. Singletary, production foreman for Transwestern Oil Co. in the Britton field in Oklahoma County, Oklahoma

Rusk County

Gant and others No. 29 Moore, 3,561-72 feet, 25 bbls. per hour. Atlantic Refining Co. No. 16-D Pinkston, 3,557-3,639 feet, 21 bbls. per hour. Ed DeArman and others No. 3 Rogers-Tipps, 3,583-98 feet, 90 bbls. in eight hours on swab. H. Hanbury No. 3 Van Zandt, 3,637-40 feet, 30 bbls. per day on pump, 10 per cent water. Humble Oil & Refining Co. No. 53 Blackwell, 3,630-31 feet, 80 bbls. per hour. Luling Oil & Gas Co. No. 2 Maxwell, 3,606-56 feet, 20 bbls. in two hours on pump. M. H. & J. McMurray No. 1 Williams, dry and abandoned 3,610 feet. Royal Petroleum Corp. No. 13 McDavid, 3,641-90 feet, 20 bbls. in five hours on pump.

Upshur County

W. W. Bradley No. 8 Smith, 3,650-54 feet, 87 bbls. per hour. Dean Brothers No. 7 Victory, 3,643-46 feet, 25 bbls. per hour. Flannigan Production Co. No. 5 fee, 3,653-62 feet, 73 bbls. per hour. Nivla Oil Corp. No. 2 Morgan, 3,812-50 feet, dry and abandoned. P. H. Pewitt No. 4 Jones, 3,775-77 feet, 40 bbls. per hour; No. 2-A Sobey, 3,729-31 feet, 20 bbls. in 30 minutes through one-half inch choke. J. E. Watts No. 7 O'Byrne, 3,776-77 feet, 30 bbls. per hour.

Smith County

Big Indian Oil Co. No. 17 Wolford, 3,711-12 feet, 20 bbls. in 30 minutes. Hunt Oil Co. No. 25-A Fair, 3,673-87 feet, 66 bbs. per hour. G. C. Walters No. 3 Cross, 3,674-75 feet, 30 bbls. per hour.

COMPLETIONS IN EAST CENTRAL TEXAS

Anderson County

Robinson & Hombs No. 1 fee, 5,337 feet, 22 bbls. through 4/64-inch choke on bottom and three-quarters inch choke on top. Tide Water Oil Co. and others No. 27-A Wills, 4,078 feet, estimated 50,000,000 to 60,000,000 feet of gas daily.

Franklin County

Humble Oil & Refining Co. No. 18 King and Hughes, 4,324 feet, 330 bbls. daily.

Hopkins County

Empire Oil & Refining Co. No. 2 Worsham, 4,525 feet, 46 bbls. per hour. Hager and Luce No. 2 Reynolds, 4,535 feet, 124 bbls. in three hours; No. 8 Worsham, 4,563 feet, 18 bbls. in three hours.

Titus County

B. G. Byars and others No. 2-C Blackburn, 4,308 feet, 85 bbls. in five hours through quarter-inch choke. Barnett and Harrell No. 1 Dean and Adkisson, 4,352 feet, 12 bbls. per hour on swab. Humble Oil & Refining Co. No. 2 Fry, 4,328 feet, 222 bbls. in 19 hours through quarter-inch choke. K. & A. Oil Co. No. 4-31 Talco Townsite, 4,330 feet, 100 bbls. in six hours on swab. Alex McCutchin No. 4-28 Talco Townsite, total depth 4,342 feet, plugged back to 4,330 feet, 14 bbls. per hour on swab. Owenby Oil Co. No. 2 Barton, 4,285 feet, 48 bbls. per day on swab. J. S. Rushing No. 2 Mitchner, 4,315 feet, 10 bbls. per hour.

Texas and Louisiana Gulf

By
F. L. SINGLETON

FIVE CORNERS GAS FIELD IS CONVERTED INTO OIL FIELD

HOUSTON, Tex., Jan. 25.—The Five Corners gas field, southern Wharton County, discovered in June, 1936, was converted into an oil field by completion of Texas Co. No. 5-B A. H. Pierce, when it flowed 80 bbls. of pipe-line oil a day through an eighth-inch choke with tubing pressure 525 pounds and casing pressure 725 pounds. The well has been shut in while storage tanks are being built and is standing with the tubing pressure 600 pounds and the casing pressure 800 pounds. Production is from a screen setting made in 7 feet of sand bottomed at 5,554 feet. This is the same sand that produces gas in three other wells, one of which is producing wet gas. No. 5-B Pierce is in the A. H. Pierce Survey, northeast of No. 4-B Pierce.

This is the third oil field in three tries to be opened by the company on the Pierce Estate ranch. It is approximately 2 miles east of the Withers field and about 12 miles south of the Pickett Ridge field. Geophysical work is said to have located several "highs" on this ranch and material is being moved to the south for another wildcat, No. 1 Gus Kluck, in the Joseph Hyland Survey, near the Five Corners Prospect where Pure Oil Co. recently drilled three deep tests.

In the same county, but to the southeast and offsetting the discovery well of the Magnet field, C. E. MacDonald No. 1 Evelyn Sweet is shutdown waiting on orders after coring salt-water sand to a total depth of 5,854 feet. Salt-water sand with an oil and gas odor was cored from 5,701-5,819 feet and from 5,824-54 feet, and after taking six side-wall cores from 4,379-98 feet, which showed sand with no shows of oil or gas, the well will no doubt be abandoned. A drillstem test from 5,690-5,708 feet showed 33 thribbles of salt water. This well is a south offset to the discovery well in Lot 5, Block 84 and is the first real test made since the field was discovered.

Lockridge Field Extended

The Lockridge field, Brazoria County, was extended 2,000 feet east, with the completion of Shell Petroleum Corp. No. 1 Prison Farms, which is still cleaning itself, flowing an estimated 25 bbls. of fluid an hour through a quarter-inch choke with tubing pressure 240 pounds and casing pressure 1,000 pounds. Twenty per cent of the flow is said to be washwater. Production is from the same horizon as the discovery horizon, in the Oligocene sand, bottomed at 6,365 feet. This is the second producer completed in this new field and with the showing of Gulf Oil Corp No. 1 Gibson a half mile to the northeast, the field shows promise of developing into one of major importance. The Gulf test is running 5-inch screen and liner after being deepened from 6,358 feet to 6,365 feet.

Two interesting wildcats are scheduled to be tested the latter part of the week. At the Sandy Point Prospect, Brazoria County, C. B. Bunte Oil & Gas Co. No. 1 J. A. Fite, in the D. Talley Survey, is running a string of 5-inch casing to test a sand from 6,440-41 feet, indicated on an electrical coring test made after the hole had been drilled to 7,013 feet. This sand is reported to be a gas sand encountered in the top of the Marginulina section which has created interest in this area. The other test is to be made at the Bammel area, Harris County, where George Lawrence and others are washing down the hole preparatory to plugging back from 6,525 feet to test a sand recorded on an electrical coring test from 6,206-26 feet. This sand is also said to be a gas sand. New activity was reported to this area. Texs Gulf Producing Co. has staked No. 1 Gillespie & Garnsey in the Simon Contreras Survey, southeast of the Lawrence well.

Best Producer Completed

The most prolific producer yet completed in the Fairbanks field, Harris County, is Stanolind Oil & Gas Co. and Amerada Petroleum Co. No. 2-C Dopslauf, which flowed 480 bbls. of pipe-line oil a day through a quarter-inch choke with tubing pressure 1,800 pounds and casing pressure 2,300 pounds. The hole, bottomed at 6,832 feet, is flowing through perforated casing made in the Cockfield sand from 6,825-37 feet. It is 933 feet south of No. 1-C Dopslauf in the W.C.R.R. Survey, Block 1.

In the Silsbee field, Hardin County, Republic Production Co. and Houston Oil Co. No. 5 Brooks is bottomed at 6,985 feet and casing is being cemented after oil sand was cored in the Cockfield section from 6,933-65 feet. A drillstem test made from 6,780-6,841 feet, showed 375 pounds of pressure and 45 feet of mud cut with distillate. It is east of No. 5 Brooks in the George Brooks Survey.

Another try for deeper production at the Bay City field, Matagordia County, has failed, Hammon Exploration Co. No. 1 J. H. Crocker having tested salt water with no shows of oil or gas on a drillstem test made through perforated casing at 9,529-31 feet. The test is 2,400 feet north of the discovery well, completed in a 9,300-foot sand which is now being worked over due to salt water intrusion.

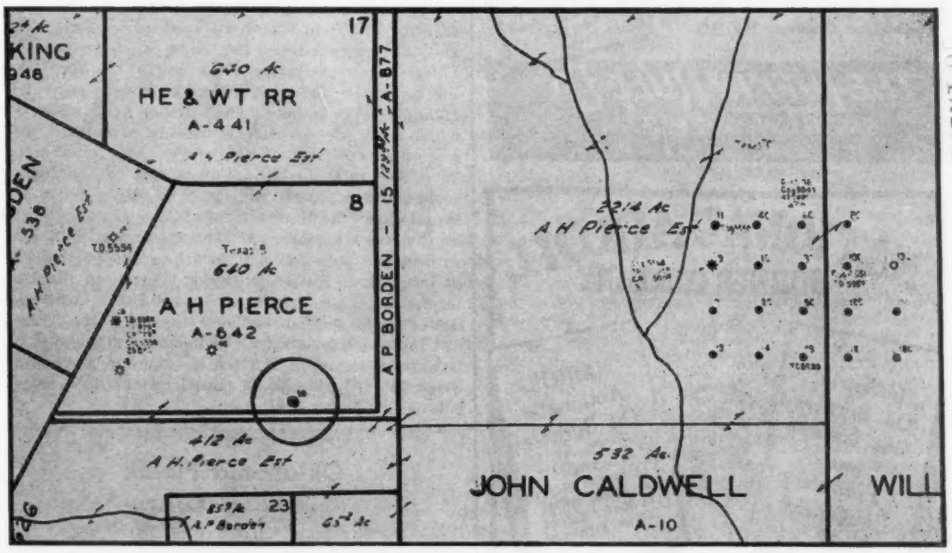
In the Dickinson field, Galveston County, attention was centered on a production test to be made on Diadem Oil Co. No. 1 Way, approximately a mile northeast of production in the P. G. Merritt Survey. A sand section with broken thin streaks of shale showing oil and gas was cored from 8,073-95 feet and hard sand with no showings from 8,095-99 feet, the total depth where 7-inch casing has been cemented. Owing to the fact that the sand showed only 3 per cent saturation by volume, the well, if productive, is expected to be a distillate well. In the south extension area, two good producers were reported. Humble Oil & Refining Co. No. 13-A Maco Stewart flowed 27 bbls. an hour through a quarter-inch choke with tubing pressure 1,200 pounds. The sand was topped at 8,767 feet, and the hole is bottomed at 8,778 feet with 7-inch casing cemented on bottom. Kenben Oil Co. No. 3 Stewart was completed at 8,671 feet for an initial production of 674 bbls. of pipeline oil a day through a quarter-inch choke with tubing pressure 1,950 pounds and casing pressure 2,500 pounds. Both wells are in the W. K. Wilson Survey.

Active Leasing Play

Two wildcat locations were made along the Conroe Trend which at this time is witnessing an active leasing play due to the recent discoveries in Polk and Hardin counties. In Tyler County, Republic Production Co. and Houston Oil Co. are moving in material for No. 2 Hurd, approximately 3,700 feet northwest of No. 1, completed last week as a dry hole in the N. Hurd Survey, while in Waller County H. E. Williams No. 1 T. C. Giddings Estate is situated in the David Mouser Survey.

Along the Louisiana Gulf Coast two wildcats in Jefferson Davis and Terrebonne parishes were holding the attention of operators in that district. West of the Tepetate field, Stanolind Oil & Gas Co. and Amerada Petroleum Corp. No. 1 Calcasieu National Bank, on the China Prospect, Jefferson Davis Parish, is drilling in sand and lime below 6,927 feet after an electrical coring test made at 6,925 feet showed the well to correlate approximately 200 feet higher than the highest well at the Tepetate field, which produces from a sand at 8,300 feet. The prospect is on the south end of a geophysical high extending in a northeast-southwest direction. Location is in section 28-7s-3w.

Shell Petroleum Corp. No. 1-B Realty, on the



Five Corners field, west of the Withers field, Wharton County, Texas. Texas Co. No. 5-B Pierce (indicated by circle), opened the first oil production for this gas field.—(W. W. Zingery, Maps, Houston)

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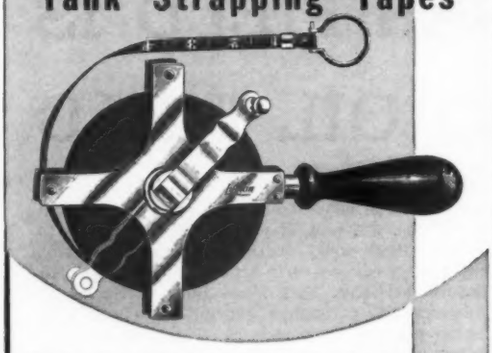

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Bayou Cocotriz Prospect, Terrebonne Parish, showed indications of opening a new field for that area by testing 500 pounds of pressure and 8 bbls. of gas- and oil-cut mud with a taste of salt water on an eight-minute drillstem test from 8,630-8,645 feet. Late in the week it was coring ahead in shale and sand below 8,692 feet. Location is in section 19-17s-15e.

The first activity in several years for the old Bayou Blue salt dome field in Iberville Parish resulted in a shallow producer completed by Humble Oil & Refining Co. on the No. 2 A. Wilbert lease, which flowed 2 bbls. of pipe-line oil an hour through a quarter-inch choke with tubing pressure 500 pounds and casing pressure 564 pounds from 1,760 feet. Seven-inch casing was cemented at 1,753 feet. The operators will flow the well for several days before deciding whether to carry the hole deeper. Production is from the Caprock. Location is in section 74-9s-10e.

Test Being Worked Over

Union Sulphur Co. No. 2 Bell, a half mile northwest of production in the Gillis field, Calcasieu Parish, completed last week in a deeper sand bottomed at 8,290 feet, flowed 200 bbls. of net oil a day through a 16/64-inch choke, but developed salt-water trouble and is now being worked over. The production test was made in sand cored from 8,279-81 feet. Fohs Oil Co. No. 1 Daharsh extended the field when it flowed 454 bbls. of pipeline oil a day through a 14/64-inch choke through perforated casing at 7,044-54 feet, the total depth. Location is in section 14-9s-8w.

The Union Sulphur Co. is reported to have taken over operating control of Magnolia Petroleum Co.'s holdings in the Big Lake field in Cameron Parish and is to start a well in the near future. The field was discovered in January, 1936, and the original block consisted of approximately 17,000 acres extending from north of Big Lake southeastward into the Willow Lake area on which Magnolia Petroleum Co. has drilled four wells, of which only the discovery well is producing wet gas at a depth below 8,000 feet. The location to be drilled by Union Sulphur is east of the Intracoastal Canal, and fuel for the wells is to be supplied by the discovery well.

Coastal Louisiana's active exploration campaign gained two more wildcat locations the past week. at the East Erath Prospect, Vermilion Parish, Drunella Oil Co. has rigged up for No. 1 Cardwell, centering in section 41-13s-4e in which the Texas Co. holds considerable protection acreage. In Evangeline Parish, derrick is up for Louisiana Crusader Oil Co. No. 1 Hattie Haas in section 2-3s-5e.

Oklahoma Fields

(Continued from Page 201)

SW SW section 3-17-7, an old well, was moving in machine to deepen; same operator's No. 2 Slick, NW SW SW section 3-17-7, an old well, was rigging up machine to deepen.

Tulsa County

Swift Brothers No. 2 Tidal, C E half NE SE section 14-19-10, Tulsa County, had Tyner series at 2,335-98 feet; Burgess sand, 2,398-2,440 feet, with no shows; Arbuckle lime, 2,471-78 feet; plugged back to 2,139 feet and produced 4,500,000 feet of gas from Bartlesville gas zone at 1,768-1,832 feet, completed.

Kay County

M. B. Armer and others No. 1-A Campbell, SE SE SW section 32-29-1w, Kay County, was an abandoned location.

Grady County

Carter Oil Co. No. 2 White Eagle, SE NW SW section 27-3n-5w, Knox pool, Grady County, an old well, was deepened from 1,224 feet to 2,506 feet, total depth, pumped 35 bbls. of oil and 5 bbls. of water, recompleted.

Stevens County

George L. Pace and others No. 1 J. T. Branch, NW SW NE section 12-2s-8w, Stephens County, was abandoned at 2,633 feet, total depth.

First reports of new work in Stephens County: J. C. Davis No. 1-A Grose, NW NE NW section 26-1s-9w, rigged up: Mudge Oil Co. No. 3 Robberson, SE SW SW section 10-3s-5w, an old well, moving in machine to deepen from 1,451 feet; same operator's No. 9 Robberson, SE SW SW section 10-3s-5w, had sand at 412-25 feet, total depth, and gas was estimated at 500,000 feet.

Jefferson County

Palmer and others No. 1-A J. H. Barrett, SE SW SW section 19-6s-5w, Jefferson County, had broken lime and sand at 1,523-25 feet, was bottomed at 1,532 feet, pumped 72 bbls. of oil and 23 bbls. of water and was completed.

Garvin County

One new location in Garvin County was reported. It was Cox & Hamon No. 3 Davis, SE NW SE section 32-1n-3w, Tussy district.

Caddo County

English Drilling Co. No. 3 Gafney, CEL NW SE section 31-6-9w, an old Caddo County well being deepened, was drilling at 3,200 feet in sandy shale. Old total depth was 2,292 feet.

Southwest Texas Fields

(Continued from Page 196)

In Webb County, Magnolia Petroleum Co. No. 6 Garcia, in Survey 786, 2 miles northeast of Oilton, also cored good-looking sands. A show of oil was had in sand at 2,019-25 feet and sand with an oil odor was encountered at 2,025-28 feet. Seven-inch casing has been set at 2,021 feet.

Moss & Heard (Sioux Oil Co.) tested water and a little oil at 1,318 feet and has plugged back to 1,316 feet for another test.

All the above shows in the Laredo district point to possible important discoveries in the near future and of attendant drilling and development of a widespread nature.

The potential new Edwards lime producer, in the Pearsall field of Frio County, Amerada Petroleum Corp. No. 8 Halff & Oppenheimer, is still being cleaned of cable and tools which lodged in the hole when the test blew out a short time ago. The test is being watched with interest as the discovery well of a new producing horizon in the field already producing from the Navarro, Buda and Austin chalk.

Elsewhere in the fault zone operators were moving into the Branyon area of Caldwell County to drill tests in the vicinity of the good producer recently completed by Whisenant & Trenchard in the old McCrory or Webster field of that county.

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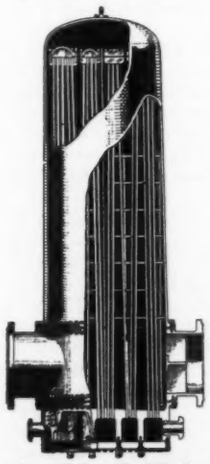

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California Field Report

By
L. P. STOCKMAN

SHOWINGS IN TWO WILDCATS GIVE PROMISE OF NEW POOLS

LOS ANGELES, Calif., Jan. 25.—Two new oil fields may be listed in California within the next 30 days, as two wildcats in widely separated areas have cored enough oil sand to justify that expectation.

Western Gulf Oil Co. No. 3 S. P. in the Cantua district of Fresno County, in section 3-17-15, bottomed at 8,530 feet, but whipstocked to 8,500 feet, has cored 70 feet of Domengine oil sand which shows a good cut and strong gas pressure. The company is preparing to set 7-inch casing at approximately 8,450 feet preparatory to an early production test. This well is No. 3 S. P. in the center of a large block the Western Gulf has had under lease for five years and on which two dusters have already been abandoned.

This company has approximately 50,000 acres under lease at the present time and if No. 3 S. P. shows substantial production of oil and gas, the company's five-year plan, which has involved the expenditure of more than $1,000,000 in drilling costs and lease rentals, will have proven a very successful venture. The Cantua district of Fresno County is 15 miles due north of the Coalinga field, one of the oldest producing areas in California.

Barnsdall No. 1 San Francisco, in section 26-3-17, Newhall district, Los Angeles Basin, cored 55 feet of Miocene oil sand with bottom of the hole at 6,215 feet and a string of 8⅝-inch casing landed at 6,160 feet.

Other Wildcat Progress

General Petroleum Corp. has encountered a troublesome water problem in its Arvin wildcat, located in section 26-31-29 in Kern County, and the well accordingly tested wet. This well, bottomed at 7,462 feet but plugged back to 7,395 feet and finished with a 6⅝-inch liner including perforations at 6,670-7,160 feet and at 7,300-95 feet, was cemented through perforations at 6,672 feet and 7,300 feet. The crew was unable to lower the fluid below 3,300 feet and some question exists as to whether the formation carries water or whether the water is entering the hole because of mechanical conditions.

The Doyle Petroleum Co. is considering the advisability of starting a second wildcat in the Jasmine district of Kern County, as the company's first test has pumped intermittently at the rate of approximately 15 bbls. per day. The fact that small production or indications of possible production have been found from time to time has been considered as ample justification for additional exploration work.

Associated Oil Co. has found it necessary to cement its second Avenal wildcat in Kings County for the third time, as the first two jobs failed to overcome the apparent high-head water. Associated No. 2 Avenal, bottomed at 1,029 feet, has cored approximately 80 feet of oil sand but no decision has been reached as to whether the inability to effect a satisfactory water shut off is due to mechanical conditions or a contaminated oil sand. Both of the wildcats drilled in the Avenal district by Associated Oil Co. have cored oil sand and, similarly, both wells encountered difficulty with water.

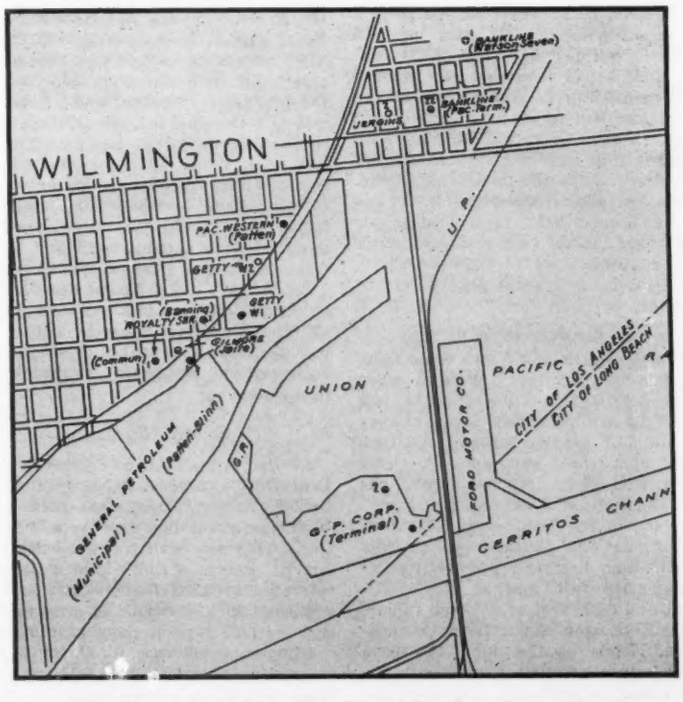
The Tejon district of Kern County is another area in California which has shown unusual promise during the past few months and consequently exploration work of Reserve Oil & Gas Co. will be watched with interest during the next 60 days. A few miles north of the acreage being tested out by Reserve Oil & Gas Co., Ohio Oil Co. within the past few days has logged approximately 25 feet of fairly good looking oil sand at 6,662 feet and preparations are under way to conduct a formation test.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	January 14		January 7			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic:						
Diesel and gas oil	70,808	10,115	.....	.....	70,808	.....
Gasoline	79,106	11,301	.....	.....	79,106	347,980
Kerosene	.....	.....	.....	.....	.....	78,640
Foreign exports:						
Crude oil	.....	.....	40,918	5,845	40,918	169,625
Fuel oil	507,385	72,484	73,907	10,558	581,292	471,254
Diesel and gas oil	48,366	6,909	326,024	46,575	374,390	93,292
Gasoline	180,755	25,822	11,274	1,611	192,029	321,268
Kerosene	22,960	3,280	.....	.....	22,960	11,949
Coastwise-domestic:						
Crude oil	134,211	19,173	64,749	9,250	198,960	143,907
Fuel oil	313,539	44,791	.....	.....	313,539	324,734
Diesel and gas oil	4,479	640	9,640	1,377	14,119	33,039
Gasoline	100,423	14,346	292,032	41,719	392,455	423,518
Kerosene	.....	.....	.....	.....	.....	7,465

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic:						
Diesel and gas oil	75,895	10,842	.....	.....	75,895	.....
Foreign exports:						
Crude oil	244,600	34,943	.....	.....	244,600	120,384
Fuel oil	.....	.....	.....	.....	.....	20,178
Diesel and gas oil	133,659	19,094	.....	.....	133,659	.....
Gasoline	81,983	11,712	.....	.....	81,983	106,198
Kerosene	3,229	461	.....	.....	3,229	.....
Lubricants	8,521	1,217	.....	.....	8,521	10,311
Coastwise-domestic:						
Fuel oil	152,698	21,814	121,686	17,384	274,384	306,303
Diesel and gas oil	18,912	2,702	39,212	5,602	58,124	18,972
Gasoline	59,614	8,516	198,714	28,388	258,328	131,714
Kerosene	.....	.....	3,367	481	3,367	10,914



Wilmington field, discovered by General Petroleum Corp., although still located within the city of Los Angeles, is expected to be extended over into the city of Long Beach in the near future

New Deep Well

Establishing a new world record for depth in a commercially producing oil well, the Associated division of the Tide Water Associated Oil Co. has auspiciously started off the new year by bringing back to California the deep production record which only a few days before had gone to Coastal Louisiana. On January 12 Associated completed No. 12 McGonigle in the Ventura Avenue field at 10,569 feet and established a new world record for depth, as this new well was brought in flowing 530 bbls. of 30.3 gravity oil and 430,000 feet of natural gas per day. This new mark tops a long list of drilling and production records established by Associated during the past 15 years. Back in 1921, Associated began its enviable drilling record when it set a California mark of 4,682 feet, which was reached in No. 1 Butterworth at Santa Fe Springs. This depth is less than half that of the new McGonigle record. With its No. 2 Clark at Santa Fe Springs setting a record of 8,165 feet in 1929, Associated continued its championship pace two years later by completing No. 57 Lloyd in the Ventura Avenue field flowing 4,800 bbls. per day from 8,823 feet. This well opened up a virgin zone which was subsequently designated as the 57 Zone. In 1932, No. 83 Lloyd headed the deep drilling list when 9,710 feet was reached but this record only stood a few years, as No. 131 Lloyd was completed as a commercial producer in the deep 57 Zone at 9,846 feet in August, 1935, flowing 3,251 bbls. per day. On January 7, 1937, Associated relinquished the deep producing honors to the Texas Co., which completed No. 5 Rigolettes as a commercial producer in the Lafitte field, Louisiana, from a depth of 10,244 feet. This new record stood but one week, however, as Associated No. 12 McGonigle was drilled to 9 feet below the depth of 2 miles and brought in as a flowing well.

El Segundo

If subsequent completions conform with the initial daily production of Richfield Oil Co.'s initial completion, the El Segundo field of Los Angeles Basin will become a factor of considerable importance from a production standpoint within the next 30 days. Operators are daily making new drilling records and six wells may be completed before the close of February. The Texas Co. in 15 days has made 5,419 feet of hole in No. 1 Johnson, which includes the landing

and cementing of 1,035 feet of 13⅜-inch casing. With production expected at approximately 7,400 feet, it is quite obvious that this well should be ready for a production test within the next two or three weeks. Republic Petroleum Co., discoverer of the El Segundo field, has also made fast footage, as its well No. 3 has already passed the 5,710-foot level with No. 4 El Segundo approaching the 4,600-foot level. The next well scheduled for completion in the El Segundo field should be No. 2 Gough of the Ohio Oil Co., which has just passed the 6,300-foot level. In as much as the first completion on the Gough lease only registered small production, it is logical to assume that the offset, No. 2, should likewise be finished as a relatively small producer. Union Oil Co. has just spudded in its initial test on its Security lease in the El Segundo field, but since this company is exceptionally efficient Union Oil Co. may possibly complete its first producing well in the El Segundo field before the close of February.

Wilmington Field

Drilling operations in the Wilmington field of Los Angeles Basin, adjacent to the Long Beach ship channel, continue to register a substantial increase from week to week, with several new locations staked within the past few days. During the past week Royalty Service Corp. completed No. 1 Community flowing 450 bbls. of relatively clean 16.9 gravity oil per day from 3,595 feet. General Petroleum Corp. cored the top of the first oil zone in No. 2 Terminal at 2,439 feet and the hole is being reamed preparatory to landing a string of casing and the resumption of drilling operations. The company has staked location for No. 4 Eubank and No. 1 Flint. The George F. Getty Co., Inc., has concluded drilling operations on No. 1-W at 3,580 feet and an 8⅝-inch liner including 491 feet of perforated has been run in and cemented through perforations at 3,087 feet. Top of the pay was picked up at 3,100 feet. Union Pacific Railroad has staked location for its first well in the Wilmington district, 4,163 feet south of the C/L of Ford Avenue and Anaheim. Gilmore Oil Co. logged the upper oil sand at 2,525 feet and after drilling to 2,540 feet started preparations to run in and cement a string of 11¾-inch casing to be landed at approximately 2,520 feet.

North Belridge

Belridge Oil Co. finished two exceptionally good wells in the North Belridge field of Kern County during the past week and should have another well ready for a production test within another 30 days. No. 15-35 in section 35-27-20 was brought in flowing 3,785 bbls. of clean 31.4 gravity oil and 7,352,000 feet of natural gas per day from 8,400 feet after the hole had been finished with a 6⅝-inch liner. No. 12-1 in section 1-28-20 was completed flowing 4,590 bbls. of clean 32.2 gravity oil and 8,000,000 feet of natural gas daily from 8,510 feet. This new producer was finished with a 9-inch water string landed at 8,035 feet and a 4¾-inch liner carrying 481 feet of perforated. No. 15-35 is one of the largest wells completed in the North Belridge field up to the present although the official initial daily production does not indicate this. On a one-hour test this well flowed at the rate of 9,500 bbls. of oil and 12,000,000 feet of natural gas. Operators in this field do not attempt to establish large initials as they are definitely committed to producing only a relatively small part of their potentials.

Mountain View

In the Mountain View field, Hancock Oil Co. recompleted No. 5 Miller flowing 3,370 bbls. of clean 31.8 gravity oil and 1,000,000 feet of natural gas per day after the hole had been redrilled and deepened to 5,439 feet and then plugged back to 5,413 feet. This well was originally completed in the upper zone but was carried down when production declined. Standard Oil Co. successfully completed No. 3 Mabry in this field and it was brought in flowing 557 bbls. of 23.4 gravity oil and 630,000 feet of natural gas per day from 4,880 feet after the hole had been finished with a 7-inch liner. Buffalo Oil Co. No. 5 in section 19-20-29 another new completion chalked up in the Mountain View field was good for 580 bbls of clean 24.3 gravity oil per day from 4,889 feet after the hole had been finished with a 5-inch liner including 343 feet of perforated. Meridian Oil Co. No. 1 Dixon in the Fruitvale field of Kern County was brought in pumping 312 bbls. of relatively clean 17.9 gravity oil daily from 3,140 feet.

Midway-Sunset

In the Midway-Sunset field of Kern County, South Cerritos Oil Co. has completed No. 4 Editor pumping 310 bbls. of 15.8 gravity oil cutting 14 per cent initially from 2,070 feet. This well finished with 435 feet of 6⅝-inch liner including 135 feet of perforated and although it was the intention to land on bottom the liner froze at 1,820 feet and the well was completed under this handicap. Chanslor Canfield Midway Oil Co. has recompleted No. 42-21 in section 21-32-23 in this field after recementing the pipe through perforations at 2,200 feet. This well was completed a week or so ago but water broke in and necessitated the second cement job. No. 24-21 was returned to production pumping 271 bbls. of 16.5 gravity oil per day from 2,700 feet. Standard has increased the amount of drilling to be undertaken in the Greeley field by staking location for No. 11-3 in section 20-29-26. This makes four new wells to be started in this field in the immediate future. The company's discovery well has been beaned back to 240 bbls. per day and under this restricted bean pressure has risen to 1,025 pounds on the tubing and 1,830 pounds on the casing.

Kettleman Hills

In the Kettleman North dome field, Kenda completed a good well when No. 52-30-J in section 30-21-17 was brought in flowing 3,800 bbls. of very clean 34.1 gravity oil and 2,100,000 feet of natural gas per day. This new well picked up the top of the brown shale at 6,320 feet and logged the top of the Temblor at 7,522 feet. The hole was finished with a 4½-inch liner carrying perforations at 8,442-8,548 feet and at 8,578-8,876 feet and 6,999 feet of 2½-inch tubing. The Kettleman North Dome Association, Kenda as the name has been officially designated, has several other potential producers scheduled for completion within the next 30 days. Standard Oil Co. No. 32-19-J in section 19-21-17 was brought in flowing 664 bbls. of 33.4 gravity oil, 8 bbls. of water and 550,000 feet of natural gas per day upon completion at 8,850 feet. The hole was finished with a 5¾-inch liner including 215 feet of perforated and 8,845 feet of 3-inch tubing. Top of the Bentonite was logged in this new well at 7,674 feet and top of the productive Temblor at 7,700 feet.

In the Round Mountain field of Kern County, Cal-Western Oil Co. has finished No. 21 in section 7-28-29 at 1,556 feet and it was brought in pumping 247 bbls. of clean 16.5 gravity oil daily. Top of the Vedder was logged in this well at 1,526 feet and the hole was finished with a 6⅝-inch liner carrying 30 feet of perforated. Shell Oil Co. is completing two new wells in this field and both should be tanking oil within the next day or two. In the Kern River field General Petroleum Corp. has completed No. 37 Young pumping 119 bbls. of clean 14.5 gravity oil daily from 2,000 feet. Thomas McManus has completed his first well out in the older section of the field and this project No. 1 Kern in section 2-29-28 was finished pumping 10 bbls. of 13.7 gravity oil per day from 392 feet.

Ten Section Field

In the Ten Section field of Kern County, Shell Oil Co. has already cored in excess of 400 feet of oil sand in No. 34-29-A and consequently this potential producer should be completed within another week or so. Top of the Stevens sand was topped at 7,826 feet. On a formation test conducted several days ago with bottom of the hole at 8,076 feet the well flowed 11 minutes at the rate of 3,500 bbls. of 32.3 gravity oil and 630,000 feet of natural gas with the tester open for 41 minutes. If the well was able to produce at the rate of 3,500 bbls. from 8,076 feet it should more than double this amount from the present depth, 8,254 feet. The bit is still going ahead. Shell No. 78 in section 29-30-26 is rotating ahead a little below 6,500 feet at present and should be ready for a production test within another 30 days. Signal Oil & Gas Co. has just spudded in No. 1 K.C.L. in section 6-30-27 and after cementing surface pipe the company will drill ahead in search of the productive Stevens sand. Standard Oil Co. No. 9-1, an outpost in the Ten Section field, has been plugged back from 8,915 feet to 8,204 feet and preparations are under way to plug back to 8,125 feet. On a formation test with the tester open 75 minutes the company recovered 825 feet of mud and fresh water between 7,927-50 feet. On a 3-hour test made at 7,927-7,995 feet the recovery was all fresh water. Superior Oil Co. has reached a depth of 9,825 feet with no indications of outstanding importance.

Santa Maria

In the Santa Maria Valley field, Echo Oil Co. completed No. 1 in section 23-10-34 pumping 340 bbls. of 16.1 gravity oil per day from 3,449 feet. This new well finished with a 7-inch water string landed and cemented at 2,894 feet did not have sufficient kick to result in a natural flow despite several days of almost continuous swabbing. W. D. Shaffer is rotating ahead in No. 1 Houk at 3,576 feet after encountering heavy oil showings at 3,210-3,293 feet. The heavy oil showings just mentioned means showings of heavy gravity oil and not a large quantity of oil. Top of Sisquoc was logged in this well at 3,293 feet. A. N. Macrate topped the Monterey in his No. 1 Fernandez at 3,321 feet and is at present rotating ahead in brown shale at 3,395 feet. E. H. Moore has been experiencing considerable mechanical trouble with his wildcat which he is drilling on the Union Sugar lease in section 25-10-35. Some time ago drill pipe was lost in this hole and it was subsequently cemented in place due to inability to recover it. The hole was then redrilled to 4,957 feet but apparently the bit is showing a tendency to drift toward the fish.

Dominguez

In the Dominguez field of Los Angeles Basin Shell Oil Co. has completed No. 88 Reyes flowing 167 bbls. of clean 34.7 gravity oil and 3,570,000 feet of natural gas per day from 6,650 feet. In the Huntington Beach field Hammil Oil Co. has completed No. 2-A Lewis doing 401 bbls. of 22.2 gravity oil daily on a compressor from 5,155 feet. In the Richfield district of Los Angeles Basin Union Oil Co. No. 40 Chapman was brought in pumping 100 bbls. per day from 3,494 feet. No showings have yet been encountered in Union Oil Co.'s deep well in this field despite the fact that the bit is down 8,610 feet. Progress has been held up for the past fortnight due to a fishing job and a recovery has not yet been effected.

Tulsa A.P.I. Meeting

The spring meeting of the Mid-Continent district of the A.P.I. Production division will be held February 25, 26, in the Mayo Hotel, Tulsa. G. A. Holloway, district chairman, has appointed Van D. Bennett general chairman in charge of the meeting.

The program committee has under consideration papers on the following subjects: "Taxation"; "The Panhandle Gas Situation in Regard to Conservation"; "Recent Developments in Water-Flooding in the Mid-Continent"; "The Future of Petroleum"; "The Fitts Pool"; "Portable Rotary Drilling Outfits"; "Methods of Taking Potentials"; "Practical Uses of Bottom-Hole Pressure Instruments"; "Modern Well Completion Methods" and "Use of Decline Curves in Evaluation of Oil Properties."

R. K. (Dick) McCONNELL
District superintendent, natural gasoline department, Phillips Petroleum Co., Oklahoma City

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Jan. 23.—In the southwest extension of Turner Valley, West Side Royalties No. 1, LSD 3, section 21-18-2w5, got the Madison limestone at 5,940 feet and cemented casing at 5,960 feet. It will start drilling into the producing horizon in about a week. This is the farthest southwest the lime has been proven. It was started early in 1934 as Highwood Royalties No. 1 on acreage of the Oliver Syndicate but left standing for over a year at 2,460 feet. It was taken over and work resumed last October by the R. A. Brown interests. It got the Dalhousie sand at 5,670 feet; brown sand at 5,730-5,790 feet and Fernie shales at 5,790 feet. It is about one-quarter mile southeast of Foundation Royalties No. 1 which got the lime at 6,018 feet; and is expected to prove a further extension of the crude oil area.

B. & B. Oil Co. No. 1, LSD 12, section 28-18-2w5, which got the lime at 6,195 feet, has resumed after cementing casing at 6,215 feet and is below 6,275 feet.

In section 21-18-2w5, Foundation Petroleums No. 1, LSD 5, is pulling 2½-inch tubing and will drill up the baller and dart at bottom of the hole, clean and flush the well and rerun 2½-inch. Previous adjustments of tubing increased the gas flow from 400,000 to around 1,200,000 feet a day. Crude production, around 345 bbls., is expected to increase when the hole is cleared.

In section 33-18-2w5, Royalite Oil Co. No. 3 Sterling Pacific, LSD 13, is adjusting tubing. On a three-day test it flowed between 126 and 135 bbls. a day. The hole is practically full of crude but gas pressure is very light.

Crude production of Turner Valley Royalties No. 1 in December aggregated 20,926.6 bbls., compared with 21,768 bbls. in November.

West Side Drilling

Development work in Turner Valley has been delayed by extreme cold weather, 30 degrees or more below. In section 30-19-2w5, Dalhousie Oil Co. No. 8, LSD 6, is below 5,616 feet and unofficially reported in the Home sand. In section 5-19-2w5, Mercury Royalties No. 1, LSD 8, is running 18⅝-inch casing to 517 feet. Mercury Oils No. 8, LSD 3, section 4-19-2w5, offsetting Sterling Pacific No. 3 immediately to the north, has derrick up.

In section 33-18-2w5, Sterling Pacific No. 4, LSD 4, is below 6,190 feet and about 200 feet off the lime. Sterling Pacific No. 5, LSD 12, same section, is rigging up.

In section 28-18-2w5, Richland Royalties No. 1, LSD 12, has derrick and equipment on the ground. Richland No. 2 (former Richfield Royalties No. 1) LSD 5, same section, is running 10-inch casing to 4,060 feet. Richland No. 3 Central, LSD 14, same section, is below 4,000 feet after getting a show of gas in the top of the Dakota. In LSD 4, same section, Model-Spooner No. 1 has been located by Geologist Russell V. Johnson 660 feet east of the west line and 320 feet north of the south line, and is working on derrick. It is midway between Turner Valley Royalties No. 1 and Foundation Royalties No. 1. Spooner Oils, Ltd., and Reward Oils, Ltd., each have a 26 per cent interest with 17½ per cent to Model Oils, Ltd., and 8 per cent to the British-American Oil Co. which has contributed $40,000 to the cost of drilling and will take production. The lease carries 10 per cent provincial royalty, 10 per cent to the original vendors and 2½ per cent to Model Oils, Ltd. Location is 2,160 feet above sea level and the Madison limestone is expected at 6,275 feet.

Farther west in section 29-18-2w5, Davies Petroleums No. 1, LSD 2, has let drilling contract to H. E. Morgan. Steel derrick and cable tools will be used.

In section 21-18-2w5, Newfold Royalties No. 1, LSD 11, is below 5,470 feet after getting the Home sand at 5,350 feet.

In section 20-18-2w5, Monarch Royalties No. 1, LSD 9, is rigging up and will likely spud before February. Rotary tools will be used, with C. E. Snyder and Hilary Head handling the contract. Prairie Royalties No. 1, LSD 16, section 17-18-2w5, has derrick up and is unloading rotary outfit.

Far South Test

More than a mile south of the nearest active drilling, National Petroleum Corp. No. 2, LSD 14, section 9-18-2w5, has gas and water lines laid and drilling outfit on location 1½ miles south of Foundation No. 1 crude producer, and over a mile south of West Side Royalties No. 1. The site is close to the Highwood River, and the well will test a large potential extension. It will likely spud in February. National Petroleum Corp. No. 1 was previously spotted in LSD 8, section 29-18-2w5, but will not likely be started till No. 2 is well under way.

North Turner Valley

In North Turner Valley, tentative arrangements have been made for completion of Phillips Petroleums No. 1, LSD 16, section 16-20-3w5, by interests associated with Model Oils, Ltd., Reward Oils, Ltd., and British-American Oil Co. The project involves 2,700 acres controlled by "Red" Phillips and associates, west and south of the Model Oils producers and about 10 miles northwest of Turner Valley Royalties No. 1. Model No. 1, in LSD 8, section 22-20-3w5, is a crude producer in the lime. Phillips No. 1 is about a mile southwest and has been standing at 2,370 feet. Imperial Oil, Ltd., is reported to have filed on 3,000 acres and Home Oil Co. on 1,700 acres north of the producing area of North Turner Valley, but believed on the same structure.

High River—Aldersyde

In the High River area, east of Turner Valley, Arca Oil Corp. No. 1, NW quarter section 24-18-1w5, on the Cayley structure, is resuming after cementing casing in the Madison limestone at 8,804 feet. It got the lime at 8,756 feet.

On the Aldersyde structure, Ranchmen's Gas & Oil Co. No. 1, LSD 16, section 13-20-29w4, is shut down at 7,065 feet owing to severe cold. The recent log indicates the formations are thinner than in the Arca well south and west.

On the New Valley structure northwest of Turner Valley, McLeod Oil Co. No. 1, LSD 4, section 6-21-2w5, is below 7,200 feet and deepening to the Blairmore formation, around 7,500 feet, for gas to flow the oil encountered in the cardium sandstone. Potential production in the cardium is estimated around 100 bbls.

Tests in the Foothills

In the Forest Reserve area west of Olds, Hunter Valley Oil Co. No. 1 McLaren, LSD 12, section 13-31-10w5, is below 7,001 feet and close to the Madison limestone.

On the Kootenay dome west of Calgary, Roxana Petroleum No. 1, section 8-24-7w5, is resuming from 1,607 feet after a temporary shutdown for severe cold. Additional gas recently encountered had a pronounced naphtha odor. It is drilling in the Madison and will be continued 1,500 feet in lime if necessary for a test of the underlying Devonian, on the theory the latter is the source pool of Alberta oil and naphtha.

On the Birch Ridge structure, Elbow Oils No. 1, LSD 11, section 35-22-5w5, is shut down at around 4,810 feet.

On the Highwood structure southwest of Turner Valley Maple Leaf Royalties No. 1 Banner, LSD 6, section 34-17-3w5, is below 2,410 feet.

In the old Oil City field, Waterton Lakes Park, Oil City Royalties No. 1, section 30-1-30w4, is shut down at 2,565 feet owing to weather, and will not likely resume till spring.

On the Mill Creek structure, west of Pincher Creek, Weymarn Petroleums No. 1, LSD 5, section 7-6-1w5, is shut down at 5,960 feet. There is considerable oil and gas showing through the rotary mud. Movement of casing has been held up by snowfall. The hole may be deepened to test the Madison limestone.

Border Fields

Work in the border areas of southern Alberta has been delayed by cold and drifted roads. On the Majestic structure west of Taber, Plains Petroleum No. 1, LSD 13-14, section 29-9-17w4, is below 2,660 feet with a potential producing horizon expected around 3,300 feet. On the South Twin River structure, Del Bonita Associated Oils No. 1, LSD 9, section 10-2-20w4, is standing cemented at 3,988 feet. It will resume drilling into the lime when the weather moderates.

On the Del Bonita structure south of Lethbridge, Sunshine Oils No. 1, LSD 10, section 19-1-21w4, is shut down at 5,232 feet, between 50 and 60 feet in the lime, with increased showings of 45-gravity.

Pigeon Lake Prospect

Plans are being made for resumption on the unfinished Mutual Oil Co. test or drilling of a new test in the Pigeon Lake area west of Wetaskiwin, following taking out by an Edmonton syndicate of prospecting permits covering 41,803 acres. The acreage is in Townships 47, 48 and 49, Range 26w4, and Townships 47 and 48 in Ranges 27w4 and 28w4. The general area is west of Wetaskiwin and Leduc. Attention was attracted to the area years ago by "mud volcanoes" due to gas seepages. Mutual Oil & Gas Co., financed largely by Wetaskiwin interests, started a test in LSD 13, section 14-47-27w4, which encountered gas at 370, 480 and 900 feet. Later Globe Drilling Co. of Edmonton deepened to around 1,200 feet when work was discontinued. It was not carried deep enough for conclusive results.

Government Drilling Denied

Reports the Alberta provincial government is planning to drill for oil on reserved acreage in the province have been denied by N. E. Tanner, recently appointed minister of lands and mines in succession to C. C. Ross. Mr. Tanner states the government policy will aim to encourage development of the fields on sound lines.

Ontario Drilling

In Chatham Township, Kent County, Union Gas Co. No. 6, SE quarter Lot 10, Concession 12, finished below 1,600 feet with a natural flow around 500,000 feet a day. It has been shot, but results not yet determined.

In the De Clute field, Kent County, Gubb & Russell No. 1, Lot 135, North Talbot Road, Raleigh Township, finished dry around 1,600 feet. It was about a mile east of large gassers on the Pardo acreage.

In the Eden field, Elgin County, Eden Gas Co. No. 4, Lot 24, Concession 8, Bayham Township, is below 800 feet. McKechnie Syndicate No. 2, same lot, is drilling about the same depth. Walters Syndicate No. 2, Lot 20, Concession 8, is finishing in the Clinton sand. E. P. Rowe No. 1, Carman Ball farm, Lot 26, Concession 8, is running casing to 1,150 feet.

In the Brownsville field Armand Smith No. 4, Lot 5, Concession 10, Bayham Township, Elgin County, is below 600 feet. Aylmer Gas Co. No. 4, Peacock farm, Lot 23, Concession 12, Dereham Township, Oxford County, is drilling in around 910 feet. W. J. Hussey is below 700 feet on a test for Treleaven Syndicate of London on acreage of Aloka Oil & Gas Co. adjoining the Aloka gassers. Sam McKechnie is drilling for W. J. Aikens of Vineland about 700 feet west of Archie Treleaven No. 3 in Lot 23, Concession 11, Dereham Township.

George H. Rawlings of Chatham has a contract for drilling three wells in a new area between the Eden field and Corinth, in Elgin County.

Central West

Operations in Central Ohio, Kentucky, Illinois, Indiana

By GEORGE A. WHITNEY

FINDLAY, Ohio, Jan. 25. — Work on a large number of wells in the Central West fields was temporarily suspended due to heavy rains and floods. As much as 2 feet of water covered some of the fields and it was impossible to reach many locations or to move equipment. This condition existed mainly in southern Illinois, southern Indiana, western Kentucky and almost all of the Ohio fields. Consequently, there was a decided decrease in completed operations.

The Indiana field reported five dry holes and two gas wells; Central Ohio reported seven gas wells, four dry holes and three small oil producers, while Kentucky and Illinois reported no completions.

The largest gas well completed in the Central Ohio field in many months was brought in by Brendal Producing Co. on the C. Reichenbaugh farm, in section 15, Plain Township, Stark County. It was completed in the Clinton sand at 4,562-95 feet, gauging 7,366,000 feet after a shot.

In Cuyahoga County, Tract 3, Olmsted Township, Ohio Fuel Gas Co. completed a commercial gas well on the Michael Surman property. In Lot 306, Newburg Township, National Smelting Co. No. 1 J. H. Breck made 40,000 feet in the Clinton sand at 2,944-50 feet and has been plugged back and is being tested in the Newburg sand.

In Huron County, section 4, Hartland Township, McCorkill & Co. No. 1 E. A. Morgan is making 3,000 feet and pumping 3 bbls. of oil in seven days.

Obermiller Brothers No. 1 William Grabenstetter, section 13, Liverpool Township, Medina County, was completed below the second Clinton sand at 2,777-82 feet and gauged 350,000 feet after a shot. In section 12, Lafayette Township, Ohio Fuel Gas Co. staked a location on the Frank Hyatt property.

In Lorain County, section 11, Avon Township, William Dempsey No. 1 John Snyder was drilled through the Clinton sand at 2,347-57 feet and gauged 225,000 feet after a shot.

In Wayne County, section 32, Chester Township, Ohio Fuel Gas Co. No. 1 A. J. Norton was drilled through the second Clinton sand at 3,102-11 feet and has been plugged after making 15,000 feet.

Ohio Fuel Gas Co. No. 2 Sylvia Flack, section 17, Butler Township, Knox County, was completed below the second Clinton sand at 2,986-96 feet, and gauged 302,000 feet and made 7 bbls. of oil the first 36 hours after a shot. Production, however, dropped to 1 bbl. 14 hours later.

In Perry County, section 2, Monroe Township, Wehrle Brothers No. 5 Worley Deaver, completed in the Berea sand at 1,032-53 feet with a small show of oil and gas, made 20,000 feet after a shot and is pumping 3 bbls. of oil a day.

In Hocking County, section 35, Washington Township, Moffat No. 2 Adam Schall has been drilled in in the Berea sand at 800 feet and made 20,000 feet naturally and a show of oil. The well is making water and operators are undecided whether to plug or shoot.

Powers & Co. No. 10 Cameron Clark, section 4, Knox Township, Vinton County, was drilled 5 feet into Berea sand, topped at 1,214 feet, and is producing 5 bbls. after a shot.

In Athens County, section 23, Lodi Township, Ohio Fuel Gas Co. is deepening No. 1 Robert McClain after making over 500,000 feet in the Macksburg 500-foot sand.

In fraction 36, Dover Township, H. V. Drilling Co. No. 2 New York Coal Co. was drilled through the Clinton sand at 3,617-47 feet without a show of oil or gas and was abandoned. In section 13, Ames Township, Carpenter & Glazier No. 16 Jane and John Smith, drilled through the first Cow Run sand at 298-304 feet with a show of oil, has been abandoned. In section 35, Rome Township, Leeper & Co. is spudding No. 2 Hattie Dodds.

In Meigs County, section 3, Rutland Township, Marshall & Reed are spudding on the Jasper Miller property, and Ohio Fuel Gas Co. completed a commercial gas well on the Herbert Whaley farm in the Keener sand at 912-26 feet. This company also completed a commercial gas well on the W. Hoyt farm, section 35, Lebanon Township, in the first Berea sand at 2,023-28 feet.

In Morgan County, fraction 2, Penn Township, Kepple & Co. No. 30 John Pidgeon was drilled to 443 feet without a show and was abandoned.

INDIANA FIELD

Field operations suffered a decline in the Indiana fields and no deep tests have yet been started. In Knox County, NE NW section 23, Busserton Township, Kentucky Natural Gas Corp. No. 3 Beard was drilled to 588 feet and completed as a commercial gas well. In SE NW section 13, same township, Loyd & Parker No. 2 Elmore Blann was abandoned as dry at 335 feet. O. A. Thayer No. 4 N. A. Hall, SW SE NE section 15, same township, was drilled to 853 feet and dry. The same operator is completing No. 3 Starner Bond, section 14.

In Daviess County, NW NW section 17, Barr Township, Oliphant & Sage No. 1 John Wagler was dry. In the same township, SW SE section 27, E. R. Parker No. 1 Joseph & Elizabeth Smith was completed as a small gas well. In section 8, A. T. Spaulding is below 700 feet in No. 1 Sadie Beck. In Harrison Township, section 3, Ben D. Ruble & Co. No. 1 A. & D. Himsel has been abandoned. Midwest Development Corp. No. 1 Elisha Greenwood, section 13, Reeve Township, was drilled to 790 feet and was a duster. This company is drilling below 800 feet in No. 1 W. R. Meredith, same section.

In Decatur County, section 11, Marion Township, Hoosier Public Utilities Co. No. 2-H.P.U. No. 197 Constant Abeele is nearing completion. In section 18, Sand Creek Township, T. E. Castor is drilling on the Daniel Hull property.

In Gibson County, section 31, Columbia Township, Midwest Development Corp. is drilling No. 1 William George & Co., and in section 30, Washington Township, Big Four Oil & Gas Co. is drilling No. 1 Mary Richardson. In section 20, same township, Euclid Oil Co. is completing No. 10 Mumford Watkins.

Gas Field Operations in N. Y.-Penn.

COUDERSPORT, Pa., Jan. 23.—New York State Natural Gas Co. completed its well on the Otto Burnside farm No. 2 in Clymer Township, Tioga County, Pennsylvania, the only completion in the New York-Pennsylvania deep sand gas field for the week ended January 22.

The well gauged 17,000,000 feet with an initial rock pressure of 1,750 pounds. It was completed at 4,430 feet, 2 feet in the sand. Gas was found at 4,438 feet.

Pennsylvania Operations

French and others remain shut down at 5,500 feet on the U. B. Russell farm, Genesee Township, Potter County. Operations under way in this county now total six. Potter Development Co. is fishing at 5,035 feet in its wildcat on the Crawford Estate property, Keating Township, and is drilling at 801 feet on the L. E. English farm, Harrison Township. Six hundred and ninety feet of 9⅝-inch casing have been run in the latter well.

Potter Development Co. is drilling two wells in Warren County and is down 5,023 feet on the D. Spetz farm, Pittsfield Township, and 4,115 feet on the Lessor & Launer farm, Kinzua Township, Slyvania Corp. is shut down at 4,428 feet on the M. W. Jamieson farm in Kinzua Township.

In the wildcats farthest removed from present production, McKeury and others are drilling at 1,650 feet on the Stellman farm in Rockland Township, Venango County, and Potter Development Co. is building the rig on the J. Chapin farm, Rockdale Township, Crawford County. The latter company is also pulling casing in the old well on the Indiana Bank property, Fairfield Township, Westmoreland County.

New York Operations

Wittmer Gas Co. is drilling at 2,290 feet on the Terwilliger farm, Angelica Township, in Allegany County. Empire Gas & Fuel Co. has the rig up on the K. Mulvey farm, and G. L. Cabot, Inc., is spudding in on the Lee Harder No. 2 farm, both in Alma Township, same county, Keafman and others have the rig up on the Bank Angelica farm, Allen Township, Allegany County.

In Steuben County, Belmont Quadrangle Drilling Co. is down 3,750 feet on the L. D. Clark farm, Greenwood Township. Atwater and others have the rig up on the Herrington farm, Woodhull Township, and G. L. Cabot, Inc., has staked the location for a test on the T. H. Wing farm, Greenwood Township.

Belmont Quadrangle Drilling Co. is down 1,870 feet on the M. Rideout farm, Leon Township, Cattaraugus County. Cunningham Natural Gas Co. is moving in on the H. Hotchkiss farm, Randolph Township, same county.

Drilling Contractors

(Continued from Page 197)

week by completion in Nueces County of Wellington Oil Co. No. 1 Stockton, which flowed 12 bbls. of 25-gravity oil an hour from a total depth of 4,703 feet. The discovery, which will probably be developed by contract work, is 12 miles southwest of Corpus Christi midway between the Flour Bluff and Clara Driscoll fields.

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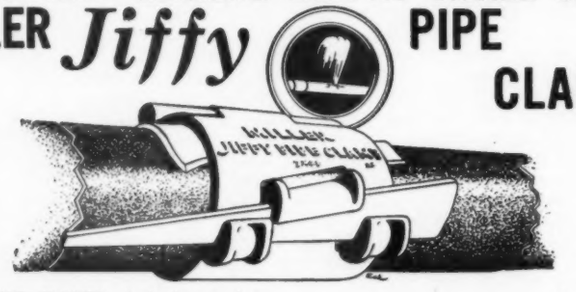

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WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Associated Oil Co., No. 1 Capitan, Santa Barbara Co...	2- 4-30	2,465	P.B. [illegible]
Barnsdall-Rio Grande, No. 7 Elwood, Santa Barbara	15- 4-29	3,512	P.B. 2,972
Shaffer, W. D., No. 1 Santa Maria, Santa Barbara Co.	9- 9-33	3,576	sd. sh. drlg.
Macrate, A. N., No. 2 Santa Maria, Santa Barbara Co.	26-10-34	3,394	sd. sh. drlg.
Echo Oil Co., No. 1 Santa Maria, Santa Barbara Co.	23-10-34	3,449	pump. 340 b.d.
Union Oil Co., No. 12 Santa Maria, Santa Barbara Co.	24-10-34	4,087	sd. sh. drlg.
Union Oil Co., No. 17 Orcutt, Santa Barbara Co.	26- 9-34	1,530	sd. sh. drlg.
Valley Oil Co., No. 1 Casmalia, Santa Barbara Co....	20- 9-34	391	sd. sh. drlg.
Petrol Corp., No. 1 Gato Ridge, Santa Barbara Co...	9- 8-32	2,480	O.S. drlg.
Field Gasoline Corp., No. 1 Gato Ridge, Santa Barbara	4- 8-32	1,651	sd. sh. drlg.
Stewart-Carter Oil Co., No. 1 Gato Ridge, S. Barbara	4- 8-32	1,672	sd. sh. drlg.
Moore, Inc., No. 1 Santa Maria, Santa Barbara Co. ..	25-10-35	8,021	cmt. fish
Nine Springs Oil Co., No. 1 Los Olivos, Santa Barbara	9- 7-30	3,080	rigging up
Dietzman, J., No. 1 Carpenteria, Santa Barbara Co. ..	8- 4-25	1,025	rigged up
Fisher, Dan, No. 1 Cuyama, Santa Barbara Co.	28-11-28	640	sd. sh. drlg.
Merchants Pet. Co., No. 7 Sespe, Ventura Co.	1- 4-20	548	hd. sd. drlg.
Condor Oil Co., No. 1 Sespe, Ventura Co.	6- 4-19	1,477	idle
Topa Topa Oil Co., No. 1 Sespe, Ventura Co.	33- 5-19	3,200	idle
Spelk Oil Co., No. 2 Sespe, Ventura Co.	33- 5-19	1,720	hd. sh. drlg.
Colima Oil Co., No. 2 Sespe, Ventura Co.	25- 5-19	606	idle
Oil Ridge Oil Co., No. 1 Hopper Canyon, Ventura Co	6- 4-18	2,774	bailing
Bolsa Chica Oil Co., No. 4 Temescal, Ventura Co.	4- 4-18	4,584	P.B. 3,580
Bolsa Chica Oil Co., No. 5 Temescal, Ventura Co.	5- 4-18	731	sd. sh. drlg.
Pacific Western Oil Co., No. 7 Temescal, Ventura Co.	4- 4-18	3,015	hd. sd. drlg.
Associated Oil Co., No. 1 Wiley Canyon, Ventura Co.	6- 3-18	4,287	hd. sd. drlg.
St. Louis Oil Co., No. 3 Ojai, Ventura Co.	13- 4-24	281	hd. sd. drlg.
Vaca Oil Co., No. 1 Oxnard, Ventura Co.	6- 1-21	2,822	rig heater
Continental Oil Co., No. 1 Red Mountain, Ventura Co	7- 3-23	4,800	hd. sd. drlg.
General Pet. Corp., No. 1 Padre Canyon, Ventura Co.	15- 3-24	5,403	sd. sh. drlg.
C.C.M. Oil Co., No. 2 Padre Canyon, Ventura Co.	23- 3-24	5,676	br. sh. drlg.
Honolulu Oil Corp., No. 1 South Mountain, Ventura Co.	23- 3-21	6,396	hd. sd. drlg.
Calco Pet. Corp., No. 4 South Mountain, Ventura Co...	17- 3-20	2,891	sd. sh. drlg.
Associated Oil Co., No. 27 Hartman, Ventura Co.	22- 3-23	4,931	sd. sh. drlg.
Associated Oil Co., No. 12 McGonigle, Ventura Co.	23- 3-23	10,569	flow. 536 b.d.
Associated Oil Co., No. 28 Lloyd, Ventura, Ventura Co.	27- 3-23	5,850	fish. D.P.
Associated Oil Co., No. 78 Lloyd, Ventura, Ventura Co.	27- 3-23	4,695	recmtd. 4,690
Shell Oil Co., No. 89 Taylor, Ventura, Ventura Co. .	30- 3-23	5,588	sd. sh. drlg.
General Pet. Corp., No. 17 Barnard, Ventura, Ventura	23- 3-23	5,590	hd. sh. drlg.
Continental Oil Co., No. 6 San Miguelito, Ventura Co.	24- 3-24	5,261	sd. sh. drlg.
General Petroleum Corp., No. 5 Rincon, Ventura Co. ..	tideland	2,720	sd. sh. drlg.
Surf Oil Co., No. 4 S. P., Rincon, Ventura Co.	8- 3-24	3,900	P.B. 3,865
Den Petroleum Co., No. 1 Devils Dens, Kern Co.	20-25-19	2,954	br. sh. drlg.
Lube Oil Co., No. 1 Devils Den, Kern Co.	2-25-18	2,218	hd. sh. drlg.
Welport Oil Co., No. 16 McKittrick, Kern Co.	26-29-21	1,190	O.S. drlg.
Woodward, Hoke, No. 6 McKittrick, Kern Co.	11-30-21	1,317	P.B. 1,167
Peters Royalty Corp., No. 2 McKittrick, Kern Co. ..	32-29-22	1,560	hd. sd. drlg.
Continental Oil Co., No. 1 Wasco, Kern Co.	8-27-24	8,421	sd. sh. drlg.
Belridge Oil Co., No. 12-1 North Belridge, Kern Co.	1-28-20	8,510	flow. 4,590 b.d.
Belridge Oil Co., No. 14-35 North Belridge, Kern Co.	35-27-20	6,897	sd. sh. drlg.
Belridge Oil Co., No. 15-35 North Belridge, Kern Co.	35-27-20	8,400	flow. 3,785 b.d.
Belridge Oil Co., No. 62-27 North Belridge, Kern Co.	27-27-20	3,583	sd. sh. drlg.
Dougan Oil Co., No. 1 Kern Front, Kern Co.	17-28-27	2,921	sd. sh. drlg.
National Oil Co., No. 3 Universal, Kern Front, Kern..	11-28-27	1,986	rig. to pump
National Oil Co., No. 4 Universal, Kern Front, Kern	11-28-27	1,887	sd. sh. drlg.
Honolulu Oil Corp., No. 88 Kern Front, Kern Co.	8-28-27	2,921	sd. sh. drlg.
M. H. Whittier Co., No. 3 Kern Front, Kern Co.	16-28-27	2,848	cmtd. 2,741
Cedar Oil Co., No. 1 Gill, Kern Front, Kern Co.	8-28-27	510	sd. sh. drlg.
Seakayden Oil Co., No. 3 Kern Front, Kern Co.	17-28-27	2,052	sd. sh. drlg.
Standard Oil Co., No. 2-9 Kern Front, Kern Co.	9-28-27	2,868	rig. to pump
Standard Oil Co., No. 3-9 Kern Front, Kern Co.	9-28-27	732	sd. sh. drlg.
General Pet. Corp., No. 37 Young, Kern Front, Kern	14-28-27	2,000	pump. 120 b.d.
Hope Oil Co., No. 1 Kern River, Kern Co.	8-29-28	1,800	idle
McManus, Thomas, No. 1 Kern River, Kern Co.	2-29-28	392	pump. 10 b.d.
Roscoe & Stanley, No. 2 Premier, Kern Co.	29-27-27	2,695	P.B. 1,200
Pramac Oil Co., No. 3 Premier, Kern Co.	22-27-28	996	sd. sh. drlg.
Transit Oil Co., No. 1 Glide, Mount Poso, Kern Co.	33-27-28	1,791	idle
Petroleum Securities, No. 6 Mount Poso, Kern Co. ..	26-27-28	1,564	rig. to pump
Harp, E. J., No. 1 Mount Poso, Kern Co.	27-26-28	1,687	gr. sd. drlg.
C.C.M. Oil Co., No. 3 Dorsey, Mount Poso, Kern Co. ..	26-27-28	1,520	idle
C.C.M. Oil Co., No. 1 Alford, Mount Poso, Kern Co. ..	35-27-27	531	sd. sh. drlg.
Magee, H. H., No. 1 Fruitvale, Kern Co.	23-29-27	731	sd. sh. drlg.
Western Gulf Oil Co., No. 34 Fruitvale, Kern Co.	21-29-27	6,040	br. sh. drlg.
Western Gulf Oil Co., No. 36 Fruitvale, Kern Co.	22-29-27	3,976	sd. sh. drlg.
Western Gulf Oil Co., No. 37 Fruitvale, Kern Co.	14-28-27	3,220	sd. sh. drlg.
Kasey & Associates, No. 1 Fruitvale, Kern Co.	23-29-27	3,140	cmtd. 3,082
Meridian Oil Co., No. 1 Dixon, Fruitvale, Kern Co.	23-29-27	3,140	pump. 315 b.d.
Omar Oil Co., No. 1 Fruitvale, Kern Co.	21-29-27	4,164	P.B. 4,100
Linderman Oil Corp., No. 1 Fruitvale, Kern Co.	28-29-27	4,222	pump. dry
Trico Oil & Gas Co., No. 1 Mountain View, Kern Co.	13-30-28	5,000	redrlg. 4,465
Hancock Oil Co., No. 5 Mountain View, Kern Co.	14-30-28	5,413	flow. 3,370 b.d.
Hogan Pet. Co., No. 9 Porter, Mountain View, Kern Co.	29-30-29	6,098	pump. water
Buffalo Oil Co., No. 5 Mountain View, Kern Co.	19-30-29	4,889	flow. 600 b.d.
Standard Oil Co., No. 3 C.L., Mountain View, Kern Co.	13-30-28	4,837	cmtd.
Standard Oil Co., No. 3 Mabry, Mountain View, Kern	18-30-28	4,880	flow. 557 b.d.
Ohio Oil Co., No. 5 Derby, Mountain View, Kern Co...	33-30-29	1,953	sd. sh. drlg.
Mohawk Pet. Co., No. 3 Hood, Mountain View, Kern	30-30-29	8,460	deep test
Hillman & Long, No. 1 Mountain View, Kern Co.	34-30-29	4,560	sd. sh. drlg.
Shell Oil Co., No. 2 Bahrenburg, Mountain View, Kern	32-30-29	5,957	pump. 146 b.d.
Berry Holding Co., No. 4 Edison, Kern Co.	10-30-29	1,926	test. wet
Buffalo Oil Co., No. 1 Edison, Kern Co.	24-30-29	752	sd. sh. drlg.
Johnson-Leaf Oil Co., No. 1 Edison, Kern Co.	24-30-29	1,525	redrlg. 510
Mohawk Pet. Co., No. 3 Earl, Arvin, Kern Co.	4-31-29	1,540	sd. sh. drlg.
General Petroleum Corp., No. 1 Arvin, Kern Co.	26-31-29	7,462	P.B. 7,395
Arkelo Oil Co., No. 1 Lerdo, Kern Co.	23-28-26	7,760	sd. sh. drlg.
Associated Oil Co., No. 1 Rio Bravo, Kern Co.	30-29-25	8,115	sd. sh. drlg.
Shamrock Oil Co., No. 6 Round Mountain, Kern Co.	6-28-29	1,561	pump. 125 b.d.
Shell Oil Co., No. 12 Freeman, Round Mountain, Kern	20-28-29	1,830	pump. 290 b.d.
Shell Oil Co., No. 17 Caldwell, Round Mountain, Kern	7-28-29	1,485	cmtd. 1,470
California Western Oil Co., No. 21 Round Mt., Kern	7-28-29	1,556	pump. 180 b.d.
Trans-Line Oil Co., No. 1 San Emidio, Kern Co.	3-10-23	951	cleaning out
Standard Oil Co., No. 9-1 Ten Section, Kern Co.	34-30-26	8,915	P.B. 8,122
Shell Oil Co., No. 34-29 Ten Section, Kern Co.	29-30-26	8,216	O.S. drlg.
Shell Oil Co., No. 78-30 Ten Section, Kern Co.	30-30-26	6,231	sd. sh. drlg.
Signal Oil & Gas Co., No. 1 Ten Section, Kern Co. ..	21-30-27	195	sd. sh. drlg.
Superior Oil Co., No. 8 Ten Section, Kern Co.	11-30-26	9,830	hd. sh. drlg.
C.C.M. Oil Co., No. 24-21 Midway-Sunset, Kern Co. ..	21-32-23	2,700	pump. 280 b.d.
C.C.M. Oil Co., No. 25-21 Midway-Sunset, Kern Co. ..	21-32-23	2,180	rig. to pump
C.C.M. Oil Co., No. 1-J Midway-Sunset, Kern Co.	21-32-23	2,095	P.B. 1,739
Hoyt, Otis, No. 4 Midway-Sunset, Kern Co.	7-11-23	1,520	sd. sh. drlg.
Alford, J. W., No. 7 Midway-Sunset, Kern Co.	25-12-24	2,785	cmtd. 2,596
General Pet. Corp., No. 32-6 Midway-Sunset, Kern Co.	32-32-24	3,075	sd. sh. drlg.
South Cerritos Oil Co., No. 4 Midway-Sunset, Kern Co.	22-32-23	2,070	pump. 340 b.d.
Merritt-Annex Oil Co., No. 3 Midway-Sunset, Kern Co.	25-12-24	2,775	will redrl.
Standard Oil Co., No. 216-33-D Midway-Sunset, Kern	33-32-24	2,830	sd. sh. drlg.
Gibson Oil Co., No. 4 O'Brian, Midway-Sunset, Kern	6-11-23	3,065	cmtd. 2,912
Goldman, Frank, No. 5 Midway-Sunset, Kern Co.	22-32-23	1,563	fish. D.P.
McGray, Robert, No. 1 Midway-Sunset, Kern Co. ..	22-32-23	2,180	sd. sh. drlg.
McGray, Robert, No. 2 Midway-Sunset, Kern Co.	22-32-23	2,435	gr. sd. drlg.
Surprise Oil Co., No. 6 Midway-Sunset, Kern Co.	36-32-23	1,285	sd. sh. drlg.
Union Oil Co., No. 4 Williams, Midway-Sunset, Kern	22-32-23	1,970	cmtd. 1,968
Oil Producers, Inc., No. 1 Midway-Sunset ,Kern Co. ..	7-11-23	2,904	sd. sh. drlg.
Quality Oil Co., No. 2 Cypress, Midway-Sunset, Kern	22-32-23	1,985	will deepen
St. Helens Pet. Co., No. 1 Midway-Sunset, Kern Co. ..	22-32-24	3,730	P.B. 3,645
Reserve Oil & Gas Co., No. 33-1 Tejon, Kern Co.	33-11-19	4,989	idle
Reserve Oil & Gas Co., No. 33-2 Tejon, Kern Co.	33-11-19	4,495	cleaning out
Reserve Oil & Gas Co., No. 33-3 Tejon, Kern Co.	33-11-19	4,431	cmtd. 4,381
Ohio Oil Co., No. 2 Tejon, Kern Co.	21-11-19	6,662	O.S. drlg.
Buffalo Oil Co., No. 1 Tejon, Kern Co.	5-10-19	1,774	sd. sh. drlg.
Western Gulf, No. 3 Cantua, Fresno Co.	3-17-15	8,530	good O.S.
K.N.D.A., No. 4-18-J Kettleman North, Fresno Co. ..	18-21-17	9,400	gr. sd. drlg.
K.N.D.A., No. 25-20-J Kettleman North, Fresno Co. ..	20-21-17	8,473	gr. sd. drlg.
K.N.D.A., No. 21-30-J Kettleman North, Fresno Co. ..	30-21-17	8,849	P.B. 8,832
K.N.D.A., No. 52-30-J Kettleman North, Fresno Co. ..	30-21-17	8,880	flow. 3,880 b.d.
K.N.D.A., No. 63-28-J Kettleman North, Fresno Co. ..	28-21-17	8,480	fish. D.P.
K.N.D.A., No. 83-24-H Kettleman North, Fresno Co. ..	24-21-16	8,882	testing
K.N.D.A., No. 81-32-J Kettleman North, Fresno Co. ..	32-21-17	7,834	sd. sh. drlg.
K.N.D.A., No. 85-32-J Kettleman North, Fresno Co. ..	32-21-17	8,286	hd. sd. drlg.
K.N.D.A., No. 47-2-P Kettleman North, Kings Co. ..	2-22-17	7,600	reaming
Standard Oil Co., No. 32-19-J Kettleman North, Fresno	19-21-17	8,850	flow. 684 b.d.
Standard Oil Co., No. 8-19-J Kettleman North, Fresno	19-21-17	7,262	sd. sh. drlg.
Standard Oil Co., No. 85-19-J Kettleman North, Fresno	19-21-17	8,483	sd. sh. drlg.
Standard Oil Co., No. 46-13-H Kettleman North, Fresno	13-21-16	9,597	hd. sd. drlg.
Standard Oil Co., No. 38-33-J Kettleman North, Fresno	33-21-17	5,639	sd. sh. drlg.
Standard Oil Co., No. 78-3-P Kettleman North, Kings	3-22-17	1,970	sd. sh. drlg.
Standard Oil Co., No. 46-19-V Kettleman Middle, Kings	19-23-19	7,962	sd. sh. drlg.
Associated Oil Co., No. 2 Avenal, Kings Co.	35-23-17	1,029	recmtd. 937
Jergins Trust, No. 1 Indian Knob, San Luis Obispo Co.	26-31-12	1,473	cleaning out
Calif. Producing Co., No. 1 Pattiway, San Luis Obispo	19-10-24	751	sd. sh. drlg.
United Oil Co., No. 1 Panorama, San Luis Obispo Co.	2-32-21	2,430	idle
Union Oil Co., No. 1 Huasna, San Luis Obispo Co. ..	22-32-15	4,332	br. sh. drlg.
Lewis, A. O., No. 1 Pecho, San Luis Obispo Co.	34-30-10	2,310	redrlg. 2,000
Cholame Synd., No. 1 Cholame, San Luis Obispo Co...	10-25-15	3,687	cleaning out
Anderson, Amil, No. 1 Cholame, Monterey Co.	15-24-14	1,570	sd. sh. drlg.
The Texas Co., No. 1 King City, Monterey Co.	30-19- 7	1,260	sd. sh. drlg.
Shell Oil Co., No. 1 Pleyto, Monterey Co.	34-24-10	8,994	P.B. 8,750
Shell Oil Co., No. 2 Pleyto, Monterey Co.	34-24-10	5,861	sd. sh. drlg.
Texas Co., No. 2 Eureka, Humbolt Co.	22- 3- 1	7,132	redrlg. 7,000

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Bldg., building.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
C.P., casing pressure.
Cd or Crd., cored.
C.D., corrected depth.
Cg., coring.
C.L., center line.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., pulling big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.R.T., rigging up rotary tools.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sd. sh., sandy shale.
Sdtr., or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporary abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.O.O.K., water shutoff O.K.
W.S.O.N.G., water shutoff no good.
W.S.R. or W.O.S.R., wait on standard rig.
Wtr., water.

Associated Oil Co., No. 1 Sargent, San Benito Co. .. 5-12- 4 5,271 hd. sd. drlg.
Buttes Oilfields, Ltd., No. 1 Kent, Sutter Co. ..... 2-15- 1 5,100 gr. sd. drlg.
Jennings, E. P., No. 1 Allensworth, Tulare Co. ..... 4-24-23 2,501 bl. sh. drlg.
Seaboard Oil Corp., No. 1 Terra Bella, Tulare Co. .. 16-23-26 2,340 sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Caminol Oil Co., No. 1 El Segundo, Los Angeles Co..	18- 3-14	4,962	sd. sh. drlg.
Caminol Oil Co., No. 2 El Segundo, Los Angeles Co. ..	18- 3-14	1,871	sd. sh. drlg.
Richfield Oil Co., No. 2 El Segundo, Los Angeles Co.	18- 3-14	5,562	sd. sh. drlg.
Richfield Oil Co., No. 4 El Segundo, Los Angeles Co.	18- 3-14	3,941	sd. sh. drlg.
Ohio Oil Co., No. 2 El Segundo, Los Angeles Co.	7- 3-14	6,251	sd. sh. drlg.
The Texas Co., No. 2-1 El Segundo, Los Angeles Co.	17- 3-14	5,419	sd. sh. drlg.
Republic Petroleum Co., No. 3 El Segundo, Los Angeles	18- 3-14	5,710	sd. sh. drlg.
Republic Petroleum Co., No. 4 El Segundo, Los Angeles	18- 3-14	4,530	sd. sh. drlg.
Union Oil Co., No. 1 El Segundo, Los Angeles Co.	18- 3-14	173	sd. sh. drlg.
Signal Finance Co., No. 1 Hawthorne, Los Angeles Co.	10- 3-14	9,395	swab, water
C.C.M. Oil Co., No. 18 Torrance, Los Angeles Co.	31- 3-14	3,998	sd. sh. drlg.
Fullerton Oil Co., No. 4 Torrance, Los Angeles Co. ..	18- 4-14	4,164	sd. sh. drlg.
Fullerton Oil Co., No. 1 Torrance, Los Angeles Co.	18- 4-14	4,699	sd. sh. drlg.
Nelson Pet. Co., No. 2 Torrance, Los Angeles Co.	18- 4-14	3,525	P.B. 3,420
Keystone Consd. Oil Co., No. 1 Redondo, Los Angeles	8- 4-14	3,300	reaming
McLaren & Associates, No. 1 Palos Verdes, Los Angeles	27- 4-14	3,992	cleaning out
So. Calif. Drlg. Co., No. 1 Palos Verdes, Los Angeles	2- 5-14	1,230	sd. sh. drlg.
Universal Consd., No. 1 Gardena, Los Angeles Co. ...	36- 3-14	8,005	dry; abd.
Shell Oil Co., No. 47 Reyes, Dominguez, Los Angeles	33- 3-13	5,485	flow, water
Shell Oil Co., No. 88 Reyes, Dominguez, Los Angeles	33- 3-13	6,660	flow, 167 b.d.
Shell Oil Co., No. 89 Reyes, Dominguez, Los Angeles	33- 3-13	5,775	sd. sh. drlg.
Shell Oil Co., No. 90 Reyes, Dominguez, Los Angeles	33- 3-13	1,086	sd. sh. drlg.
Union Oil Co., No. 48 Callender, Dominguez, Los Ang.	33- 3-13	6,301	sd. sh. drlg.
Union Oil Co., No. 50 Callender, Dominguez, Los Ang.	33- 3-13	5,710	sd. sh. drlg.
Union Oil Co., No. 53 Callender, Dominguez, Los Ang.	33- 3-13	3,861	sd. sh. drlg.
Union Oil Co., No. 9 Carson, Dominguez, Los Angeles	33- 3-13	4,790	sd. sh. drlg.
Barnsdall Oil Co., No. 10 Rosecrans, Los Angeles Co.	20- 3-13	6,837	sd. sh. drlg.
Shell Oil Co., No. 1 Rosecrans, Los Angeles Co.	20- 3-13	6,426	sd. sh. drlg.
Hildon Oil Co., No. 1 Flood Control, Los Angeles Co.	11- 4-13	6,110	sd. sh. drlg.
Eastern Oil Co., No. 1 Playa Del Rey, Los Angeles Co.	22- 2-15	7,562	idle
Sharby Oil Co., No. 1 Playa Del Rey, Los Angeles Co.	22- 2-15	7,406	fish. D.P.
Vincent Pet Co., No. 1 Culver City, Los Angeles Co.	12- 2-15	6,238	cleaning out
Barnsdall Oil Co., No. 1 Newhall, Los Angeles Co. ..	24- 3-17	6,315	O.S. cmtd.
General Pet. Corp., No. 3 Wilmington, Los Angeles Co.	4- 5-13	2,439	O.S. drlg.
Getty Oil Co., No. 1 Wilmington, Los Angeles Co.	33- 4-13	3,580	O.S. drlg.
Bankline Oil Co., No. 22 Wilmington, Los Angeles Co.	33- 4-13	2,465	sd. sh. drlg.
Royalty Service Corp., No. 1 Wilmington, Los Angeles	5- 5-13	3,595	flow, 395 b.d.
Royalty Service Corp., No. 2 Wilmington, Los Angeles	5- 5-13	2,160	sd. sh. drlg.
Gilmore Oil Co., No. 1 Wilmington, Los Angeles Co.	5- 5-13	2,540	sd. sh. drlg.
Honolulu Oil Corp., No. 1 Puente, Los Angeles Co. ..	15- 2-10	1,108	redrlg. 697
Richfield Oil Co., No. 2 Nutt, Montebello, Los Angeles	5- 2-11	5,485	fish. D.P.
Richfield Oil Co., No. 1 Estrada, Montebello, Los Ang.	5- 2-11	3,143	cleaning out
Honolulu Oil Corp., No. 1 Montebello, Los Angeles Co.	14- 2-12	4,305	dry; abd.
Hobbs Pet. Corp., No. 1 Long Beach, Los Angeles Co.	29- 4-12	2,994	bailing
Clayton, G. L., No. 1 Long Beach, Los Angeles Co. ..	32- 3-12	2,420	sd. sh. drlg.
Hathaway Co., No. 2 Fulton, Santa Fe Spgs., Los Ang.	6- 3-11	4,650	P.B. 4,050
Union Oil Co., No. 100 Santa Springs, Los Angeles Co	6- 2-11	9,000	sd. sh. drlg.
General Pet. Corp., No. 43-C Santa Fe Spgs., Los Ang.	5- 2-11	3,710	sd. sh. drlg.
Sibert Oil Co., No. 1 Santa Fe Springs, Los Angeles Co.	31- 2- 4	4,502	cleaning out
Julian & Criswell, No. 1 Walnut, Los Angeles Co.	5- 2- 9	1,350	cleaning out
Drillers Inc., No. 1 Whittier, Los Angeles Co.	22- 2-11	680	sd. sh. drlg.
Terry, George, No. 2 Crane, Huntington, Orange Co. ..	2- 6-11	3,975	will P.B.
Car-Fad Oil Co., No. 2 Huntington, Orange Co.	2- 6-11	3,879	P.B. 3,650
Hammil Oil Co., No. 2 Huntington, Orange Co.	34- 5-11	5,155	pump. 390 b.d.
The Texas Co., No. 1 V. M., Huntington, Orange Co. .	34- 5-11	4,301	sd. sh. drlg.
Orco Oil Co., No. 5 Huntington, Orange Co.	2- 6-11	3,600	sd. sh. drlg.
South Basin Oil Co., No. 94 Huntington, Orange Co...	2- 6-11	3,581	sd. sh. drlg.
Elliott Oil Co., No. 1 Hurtington, Orange Co.	34- 5-11	4,066	P.B. 4,002
M.F.K. Oil Co., No. 1 Huntington, Orange Co.	2- 6-11	3,297	sd. sh. drlg.
Lucky Strike Oil Co., No. 7 Huntington, Orange Co. ..	2- 6-11	3,480	bailing
Pan-Coast Oil Co., No. 1 Huntington, Orange Co.	34- 5-11	3,886	P.B. 3,682
Richfield Oil Co., No. 10 Fidelity, Huntington, Orange	34- 5-11	3,960	cmtd. 3,748
Richfield Oil Co., No. 1 Community, Huntington, Orange	34- 5-11	2,777	cmtd.
Rchfield Oil Co., No. 1 Crowell, Huntington, Orange	34- 5-11	4,650	P.B. 3,986
Commander Oil Co., No. 1 Newport, Orange Co.	29- 6-10	4,896	br. sh. drlg.
Standard Oil Co., No. 62 Emery, West Coyote, Orange	13- 3-11	1,192	sd. sh. drlg.
Standard Oil Co., No. 2-5 East Coyote, Orange Co. ..	22- 3-10	4,700	flow. 467 b.d.
Oil Conservation Co., No. 1 East Coyote, Orange Co. .	17- 3- 9	2,814	idle
Wilbur, V. R. G., No. 1 East Coyote, Orange Co.	20- 3- 9	3,095	will redrill
Graham & Loftus, No. 1 East Coyote, Orange Co.	18- 3- 9	4,130	sd. sh. drlg.
Associated Oil Co., No. 52 East Coyote, Orange Co.	18- 3- 9	3,487	will redrl.
Bartholomae Oil Co., No. 3 East Coyote, Orange Co...	22- 3-10	4,698	sd. sh. drlg.
West Coast Refg. Co., No. 1 Santa Ana, Orange Co. ..	25- 3- 9	2,997	sd. sh. drlg.
Bachman Pet. Co., No. 1 Richfield, Orange Co.	29- 3- 9	3,381	sd. sh. drlg.
Union Oil Co., No. 29 Chapman, Richfield, Orange Co.	30- 3- 9	8,610	fish. D.P.
Union Oil Co., No. 39 Chapman, Richfield, Orange Co	29- 3- 9	3,786	bailing
Union Oil Co., No. 40 Chapman, Richfield, Orange Co.	29- 3- 9	3,494	pmp. 100 b.d.
Union Oil Co., No. 41 Chapman, Richfield, Orange Co.	29- 3- 9	3,341	cmtd. 3,280
Union Oil Co., No. 42 Chapman, Richfield, Orange Co.	29- 3- 9	3,650	sd. sh. drlg.
Standard Oil Co., No. 2-11 Kraemer, Richfield, Orange	30- 3- 9	4,710	rig. to pmp.
Standard Oil Co., No. 2-24 Kraemer, Richfield, Orange	32- 3- 9	3,875	sd. sh. drlg.
Equitable Pet. Co., No. 1 Wildcat, San Bernardino Co.	11-10- 5	2,815	hd. sd. drlg.

KANSAS

Week Ending January 23 (Descriptions are East unless marked otherwise)

Barton County

D. R. Buchanan et al No. 1 J. Schartz, Sr., NW NW NE sec. 20-19-11w. Sil. 3,405 ft.; T.D. 3,465 ft.; D.&A.

John Burton No. 1 Wendel, NE cor. sec. 13-19-11w. Anhy. 785 ft.; S.D. 2,856 ft.

Duwe & Brouk No. 1 Baker, NE SE SW Sec. 16-17-13w. S.D. 2,915 ft.

Freeborn et al No. 1 Sooy, NW NW NE sec. 27-18-12w. S.D. 200 ft.

Hendon Drlg. Co. and Morgan & Flynn No. 1 Robenseifer, C NW sec. 7-18-15w. Spudded and S.D.

Indian Terr. Illm. Oil Co. No. 1 Schrapel, SE SE NE sec. 26-20-11w. 10-in. 2,052 ft.; drlg. 2,145 ft.

S. L. Parks No. 1 Peach, SE cor. sec. 24-16-14w. R.U.S.T.

C. L. Price et al No. 1 Kraft, SW NW NE sec. 10-17-11w. R.U.

Stanolind O. & G. Co. No. 2 Burmeister, NE NE SW sec. 33-19-11w. R.U.R.

Butler County

Cox & McGinnis No. 1 Faulders, SW SW NE sec. 27-25-3e. K.C. 1,990 ft.; drlg. 2,000 ft.

Ralph Wixson et al No. 1 Coulter, NW SW NE sec. 3-27-7. S.D. 3,008 ft.

Chase County

Propp et al No. 1 Fromm, SE cor. sec. 29-18-9e. Fsg. 2,440 ft.

Chautauqua County

Brosius et al No. 1 Morris, SW NW SW sec. 6-32-12. Run 6-in. csg. at 1,173 ft.

Sagamore Oil Co. No. 1 Kingston, NE NE NW sec. 17-32-10. K.C. 1,182 ft.; drlg. 1,285 ft.

Cowley County

C. H. Cross No. 1 Cook, SW cor. sec. 6-32-6. 6-in. 2,434 ft.; H.F.W. 2,390-2,405 ft.; S.R. 6-in. at 2,712 ft.

Simpson Oil Co. and Stanolind O. & G. Co. No. 1 Weigle, SW SW NE sec. 18-31-6. S.G. 2,471 ft.; S.O. 2,480-90 ft.; drlg. 2,825 ft.

Earl Wakefield et al No. 1 Knapp, SW SW NW sec. 2-34-5e. 50,000 ft. gas at 585-600 ft.; drlg. 1,620 ft.

Decatur County

Winkler & Koch No. 1 Vessey, C NW SE sec. 26-3-26w. Cd. 2,930-39 ft.; S.O.

Edwards County

Stanolind O. & G. Co. et al No. 1 Donovan, C SE SE sec. 14-26-18w. Simpson 4,790 ft.; Sil. 4,872 ft.; C.O. 4,944 ft.

Ellis County

Empire O. & R. Co. No. 1 Hall, SE cor. sec. 2-12-17w. U.R. 15-in. at 757 ft.

H. Jones Bros. et al No. 1 Phillips, SE SE NW sec. 9-15-17w. Set 5-in. at 3,447 ft.; U.R. at 3,493 ft.

Ted Kors et al No. 1 Koblitz, SE SW NW sec. 23-12-18w. Pay 3,694-98 ft.; swb. 48 B.O. and swbd. down; T.D. 3,699 ft.; small increase.

Lario O. & G. Co. et al No. 1 Cress, NE cor. sec. 13-11-17w. Topeka 2,655 ft.; Dodge 2,925 ft.; fsg. 2,945 ft.

Murphy Oil Co. No. 1 Wiesner, SE SE SW sec. 12-14-19w. Anhy. 1,440 ft.; drlg. 1,740 ft.

Sunray Oil Co. No. 1 Befort, NE cor. sec. 11-14-20w. Fsg. 1,315 ft.

Grant County

Columbian Fuel Co. No. 1 Gray, C SE sec. 3-29-35w. Skidded rig 100 ft. south; R.U.R.

Greenwood County

Hollis et al No. 1 Boone, NW NE NE SW sec. 21-26-12. S.D. 1,130 ft.

Ohio Oil Co. No. 1 Schwab, SE SW SE sec. 9-24-10. Drlg. 450 ft.

Harvey County

Harburney Oil Co. No. 1 Schrag, NW NW SE sec. 24-22-3w. S.D. 3,537 ft.

Saco et al No. 1 Guthrie, NE NE NW sec. 8-22-2e. Wilcox 3,315 ft.; Sil. 3,350 ft.; T.D. 3,486 ft.; S.D.

Haskell County

Helmerich & Payne No. 1 Meredith, C SW sec. 10-30-33w. Set 7-in. csg. 2,452 ft.; R.U.S.T.

Kearney County

J. L. Murphy No. 1 Campbell, NW NW SW sec. 32-25-35w. Anhy. 1,900 ft.; T.D. 2,595 ft.; 1,400,000 ft. gas.

Kingman County

Shell Pet. Corp. No. 1 McMichael, C W½ W½ SW sec. 12-27-10w. Drlg. 2,015 ft.

Lane County

K. C. Bates No. 1 Bates-Nimocks, C NW NE sec. 16-16-28w. Anhy. 2,065 ft.; Topeka 3,587 ft.; drlg. 3,767 ft.

Logan County

Rose Spring Drlg. Co. et al No. 1 Wright, C SE SE sec. 12-15-35w. Anhy. 2,230 ft.; Ft. Riley 2,868 ft.; T.D. 3,909 ft.; to skid rig.

Lyon County

Clyde Fred et al No. 1 Bruce, NW cor. sec. 18-18-10. T.D. 2,291 ft.; D.&A.

Young et al No. 1-A Murphy, SE NW NE sec. 32-21-11. S.D. 1,110 ft.

McPherson County

Hutchinson O. & G. Co. et al No. 1 Berg, SW SW SE sec. 15-20-3w. B.R.

Meade County

Pacific Midwest Co. No. 1 Rexford, NE SE SW sec. 8-30-29w. R.U.

Mitchell County

Geo. Siedhoff et al No. 1 Greiss, SW SW SE sec. 16-8-10w. S.D. 2,200 ft.

Ness County

Newton Dev. Co. No. 1 Tenny, NW NW SE sec. 19-18-25w. H.F.W. 3,319-23 ft.; U.R. 8-in.

Osborne County

Helmerich & Payne No. 1 Hittinger, C SE SE sec. 2-7s-11w. Sil. 3,930 ft.; T.D. 4,110 ft.; D.&A.

Pawnee County

Kessler & Thier et al No. 1 Wallace, SE SE NW sec. 16-23-15w. K.C. 3,659 ft.; cd. to 3,762 ft.; drlg. ahead.

Pratt County

H. V. Elwell et al No. 1 Fay, NW NW SE sec. 15-27-14w. Whipstock 2,580 ft.; W.O.C.

Reno County

Carlock et al No. 1 Brown Realty Co., NW NW NE sec. 32-22-10w. Rig.

Foraker et al No. 1 Hiett, SE SW NE sec. 34-24-4w. S.D. 3,845 ft.

Helmerick & Payne No. 1 Benson, NE cor. sec. 5-25-6w. M.I.M.

Helmerich & Payne et al No. 1 Evans, NE NE SE sec. 29-24-6w. Cellar.

Helmerich & Payne No. 1 Stewart, SE SE NE sec. 16-24-6w. K.C. 2,925 ft.; drlg. 3,608 ft.

Clyde Pulse No. 1 Payne, SW NW NE sec. 4-22-7w. Topeka 2,320 ft.; 8-in. 2,700 ft.; drlg. 2,715 ft.

W. E. Witt et al No. 1 Wright, SE NE NE sec. 9-23-8w. K.C. 3,170 ft.; drlg. 3,500 ft.

Rice County

Buckley No. 1 Bailey, SW SW NW sec. 19-20-6w. Drlg. 522 ft.

Carlock et al No. 1 Deweese, SW NW NW sec. 32-20-7w. Hunton 3,481 ft.; Viola 3,612 ft.; 2 B.W. & S.O. 3,624-30 ft.; Simpson 3,649½ ft. H.F.W. and fsg.

Dickey Oil Co. No. 1 Brothers, SE cor. sec. 1-21-7w. S.S.O. 3,480-90 ft.; H.F.W. 3,492 ft.; drlg. 3,495 ft.

Empire O. & R. Co. No. 1 Banterton, SE SW SE sec. 11-18-8w. Drlg. 1,530 ft.

Hanna et al No. 1 Brothers, SE SE NW sec. 25-20-8w. Rig.

Indian Terr. Ill. Oil Co. No. 1 Fossey, SW SW SW NE sec. 31-20-10w. 8-in. 2,775 ft.; drlg. 2,885 ft.

Rooks County

Basin Oil Co. No. 1 Baxa, NE cor. sec. 23-9-17w. Drlg. 1,235 ft.

Buckner & Schoff No. 1 McConnel, NE cor. sec. 34-6s-18w. 8-in. 2,434 ft.; U.R. at 2,645 ft.

Graham et al No. 1 Fike, SW cor. sec. 9-9-17w. Spotted pay 3,258-70 ft.; 13 B.O.; T.D. 3,296 ft.

Jones Bros. No. 1 Wiss, NW cor. sec. 8-10-18w. Spudded.

J. H. Lester No. 1 Methene, SE SE NE sec. 29-10-20w. S.D. 3,422 ft.

Snowden & McSweeney No. 1 Hindman, C E½ NW sec. 35-17s-17w. K.C. 3,022 ft.; 2 B.O.P.H. at 3,095-3,101 ft.; set 8-in. to 3,072 ft.

Rush County

S. A. Murphy et al No. 1 Roth, NW NW SW sec. 21-16-18w. Rig.

G. M. Piggott et al No. 1 Maresch, C NW NW sec. 28-19-19w. Anhy. 1,320 ft.; Sil. 4,165-66 ft.; T.D. 4,225 ft.; D.&A.

Schoenfeld & Kitch No. 1 Winget, SE cor. sec. 15-16-16w. K.C. 3,243-45 ft.; T.D. 3,427 ft.; pot. 797 B.O.; comp.

Russell County

El Dorado Refining Co. No. 1 Scott, NW NW NE sec. 17-13-13w. K.C. 3,035 ft.; Cong. 3,317 ft.; H.F.W. 3,362-67 ft.; Simpson 3,421 ft.; S.D. at 3,443 ft.

Empire O. & R. Co. No. 1 Frederick, SE cor. sec. 18-15-11w. Cong. 3,335 ft.; Sil. 3,391-93 ft.; T.D. 3,401 ft.; D.&A.

Empire O. & R. Co. No. 1 Vaughn, SW cor. sec. 17-14-14w. S.D. 325 ft.

Equity Gas Co. No. 1 Harbaugh, NW NE SW sec. 19-13-12w. Set 10-in. csg. 749 ft. W.O.C.

Getty, Inc., No. 1 Baxter, SE SE NE sec. 8-15-15w. C.O. at 835 ft.

Thayer Drlg. Co. and Dee Miller, SW cor. sec. 10-13-15w. Cong. 3,163 ft.; H.F.W. and 5-in. csg. at 3,175 ft.; drlg. 3,205 ft.

Saline County

Brouk et al No. 1 Othelander, NE NW SE sec. 10-16-3w. Viola 3,294 to 3,440 ft.; Wilcox 3,493 ft.; H.F.W. 3,505 ft.; Sil. 3,520-25 ft., T.D.; D.&A.

Ryan Consd. No. 1 Wuerth, SW SW NW sec. 28-14-2w. Drlg. 1,400 ft.

Sedgwick County

Cameron et al No. 1 Smith, SW SE SE sec. 13-27-2e. R.U.

Scott County

C. R. Blackman et al No. 1 Nolan, NW NW NE sec. 13-19-33w. Loc.

Sheridan County

O. A. Roberts et al No. 1 Corrick, C NW sec. 34-9-26w. Simpson 4,570 ft.; Sil. 4,600 ft.; cd. 4,609-19 ft.; salty taste; S.D. at 4,663 ft.

Stafford County

Empire Ref. Co. et al No. 1 Jordon, SW SW NW sec. 15-25-14w. Cd. 3,782-92 ft.; rec. 2½ in. some saturation.

Empire O. & R. Co. No. 1 O'Connor, NE cor. sec. 17-24-15w. Drlg. 1,320 ft.

C. H. Lebow et al No. 1 Wolk, SE SW NW sec. 3-21-12w. K.C. 3,205 ft. (cor.); Cong. 3,486 ft.; Sil. 3,556 ft.; T.D. 3,568 ft.; D.&A.

Skelly Oil Co. et al No. 1 Kipp, SE SE NE sec. 27-25-14w. Shot, 40 qts. 3,817-27 ft.; C.O.

C. E. Skiles et al No. 1 Hughes, SW cor. sec. 12-23-12w. Sil. 3,846 ft.; T.D. 3,884 ft.; S.D.O.

Stanolind O. & G. Co. No. 1 Rosacker, SW SW NE sec. 5-25-11w. Viola 3,913 ft.; Simpson 4,017 ft.; drlg. 4,054 ft.

Sumner County

Empire O. & R. Co. No. 1 Hoffman, NW NW SW sec. 27-34-1e. Drlg. 3,949 ft.

Graham et al No. 1 Dawson, NW NW NW sec. 4-33-2w. Fsg. 3,755 ft.

Hapenny & Green et al No. 1 Evers, SE SE NE sec. 27-31-2. S.D. 519 ft.

Lario O. & G. Co. et al No. 1 Hall, NW SW NW sec. 11-35-1e. 6-in. 3,561 ft.; chat 3,565 ft.; H.F.W. 3,660 ft.; drlg. 3,665 ft.

Orcott & Stewart No. 1 Newton, SE cor. sec. 21-30-2. O.W.W.D.; S.D. 930 ft.

Rose Spring Drlg. Co. et al No. 1-A Rutter, C NW NW sec. 21-33-2e. Pot. 138 B.O. at 3,229 ft.; T.D. 3,238 ft.; 1,400 ft. W.I.H. in 12 hrs.; P.B. to 3,233 ft. F. 127 B.O. and 25 B.W.

E. B. Shawver et al No. 1 Bryan, C W½ W½ SW sec. 36-30-2w. B.R.R.

Lloyd, Study & Frost et al No. 1 fee, SE cor. sec. 31-34-1e. Drlg. 3,885 ft.

Trego County

Black Gold Oil Co. No. 1 Allman, C SW SW sec. 34-14-21w. R.U.R.

Central Commercial Oil Co. No. 1 Burkett, C SW sec. 15-11-22w. O.W.W.D. Fsg. at 4,100 ft.

York State Oil Corp. No. 1 Gugler, SW 837-39 ft.; P.B. to 3,832 ft.; acidised; P. 288 B.O. and 170 B.W. in 19 hrs.

Woodson County

Ross & Marshall No. 1 Bresner, SW SW SE sec. 6-26-15. Sd. 1,334 ft.; drlg. 1,465 ft.

Reamer No. 1 Corn, NE cor. sec. 31-26-15 S.D. 1,706 ft.

OKLAHOMA

Week Ending January 23

NORTHERN OKLAHOMA

Beckham County

Mid-American Oil Co. No. 1 Biscoe, SW SW SW sec. 28-8-22w. T.D. 1,310 ft.; S.D.

Cleveland County

Helmerich & Payne, Inc. No. 1 Glass, C NW NE sec. 6-8-1w. Chattanooga 4,630 ft.; chert 6,708 ft.; drlg. 6,712 ft.

W. R. Hollenbeck No. 1 Norman, NW NW NE sec. 17-9-2w. Rig.

Coal County

Carter Oil Co. et al No. 1 Warne, NE NE NW sec. 31-3-9. Wilcox 5,840 ft.; T.D. 5,935 ft.; packer 5,778 ft.; showed sulfur wtr.; P.B. 5,450 ft.; W.O.C.

Continental Oil Co. No. 1 Breedlove, NW SW SW sec. 24-1-8. Drlg. 5,956 ft.

Continental Oil Co. No. 1 Daniels, SW NE SW sec. 27-1-9. Wilcox 7,161 ft.; T.D. 7,195 ft.; rng. Schlumberger test.

Continental Oil Co. No. 1 King, NE SW NE sec. 26-1-8. Wilcox 5,743 ft.; T.D. 5,762½ ft.; P.B. 836 ft. (cor.); F. 20 B.O. in one 30-min. head; P.O.P.

Continental Oil Co. No. 1 W. Kirby, SW SE SW sec. 23-1n-8e. Drlg. 3,942 ft.

Rawoldt & Couch No. 1 McMillan, SW cor. sec. 10-1s-8. Drlg. 800 ft.

Creek County

J. E. Crosbie, Inc. & Sinclair Prairie Oil Co. No. 1 Bailey, NE NW NW sec. 28-18-7. R.U.S.T.

M. W. Mosier et al No. 1 Holcomb, SE SW NW sec. 19-18-8. T.D. 2,870 ft.; S.D.

W. J. Sherry No. 1 Childers, SW SW NE sec. 2-15-7. Loc.

Garfield County

Arab Oil Co. No. 1 Harkendorf, NE cor. sec. 34-20-3w. R.O.G.

Garvin County

Ellison & Hammond No. 1 Selby, C SE NW sec. 24-2n-3w. T.D. 6,774 ft.; may abd.

Hayes Drlg. Co. No. 1 Howell, NW SE NW sec. 34-1-1. Rig.

Greer County

Bud Lewis et al No. 1 Webster, SW NE NE NE sec. 7-7-24w. Granite wash 2,145 ft.; drlg. 2,165 ft.

Hughes County

W. W. Bussett No. 1 Field, C NW SW sec. 11-9-11. S.D.

Carson Oil Co. No. 1 Lyter, NE NW SW sec. 31-8-12. Spudded.

R. K. Ellison No. 1 Peters, SE NW SE sec. 8-6-10. Cromwell 4,270 ft.; dry; T.D. 4,301 ft.; D.&A.

McAdams & Barnes No. 1 Koch, SW NE NE sec. 1-9-10. Viola 4,000 ft.; drlg. 4-028 ft.

Mid-Western Prod. Co. No. 1 Hill C SE NW sec. 13-9-9. Gilcrease 2,886 ft.; T.D. 2,887 ft.; est. 4,000,000 ft. gas; to run 8-in.

Southern Oil Co. No. 1 Buck, C NW SW SW sec. 21-8-10. R.U.S.T.

C. J. Wrightsman No. 1 Diamond, NE NE SE sec. 33-9-9. Wapanucka 3,297 ft.; first Cromwell 3,301 ft.; cd. to 3,331 ft.; dry; cg. ahead.

Kay County

G. A. Brown et al No. 1-A Harris, SW SW NE sec. 14-25-1e. R.U.S.T.

Helmerich & Payne No. 1 Constant, SW SW NE sec. 17-28-2w. Miss. 4,200 ft.; T.D. 4,400 ft.; rmg. at 4,265 ft.

Ritz Oil & Gas Co. No. 1 State, NW NE SW sec. 16-29-2w. R.U.R.

Kiowa County

Argus Pet. Co. No. 1 Osborne, NW cor. NE sec. 9-7-16w. T.D. 1,225 ft.; fsg.

McWhirter & Francis No. 1 Padgett, NE NE NW SE sec. 3-5-17w. T.D. 511 ft.; S.D.

Latimer County

Cheyenne Oil Co. No. 1 Wilson, C SE SE sec. 15-5-18. T.D. 2,902 ft.; rng. 9-in. csg.; W.O.C.

Le Flore County

McCraw et al No. 1 Tidwell, C NW SE sec. 17-3-22. 10-in. 2,246 ft.; T.D. 2,340 ft.; S.D.

Lincoln County

Anderson-Prichard Oil Corp. No. 1 Colon, C N½ SE SW sec. 28-17-4e. Drlg. 205 ft.

Fleetborn Oil Corp. No. 1 Turner, NW NW SE sec. 28-17-5. T.D. 3,994 ft.; 2½-in. tbg. 3,990 ft.; flwg. 25 B.O.P.D.

Skelly Oil Co. No. 1 Laughlin, C SE NW sec. 29-17-3e. Sd. 1,440 ft.; cd. 1,444-52 ft.; rec. 2 ft. hd. sdy. L., showing salt.

Logan County

Anthony & Marshall No. 1 Fruin-Eckman, SE SE SW sec. 4-16-1e. Drlg. on iron at 4,959 ft.

Harry Blackstock No. 1 Prince, SE NE SW sec. 11-17-3w. R.U.R.

Helmerich & Payne et al No. 1 Hasler, NW NW SE sec. 14-16-4w. Cd. from 4,511 ft.; second Wilcox 6,548 ft.; T.D. 6,575 ft.; tools moved out but hole not plugged.

Muskogee County

A. D. Spears et al No. 1 Robbins, NW cor. sec. 20-15-20. Turkey Mt. sd. 1,677-84 ft.; Arbuckle 1,710 ft.; T.D. 1,811 ft.; S.&O.; S.D.

Okfuskee County

Harvey Oil Co. No. 1 Stewart, NE cor. sec. 28-10-9. Set 10-in. csg. at 61 ft.; S.D.

Osage County

Nerbia Oil Co. No. 1 Osage, NE NE SW sec. 13-22-6. Drlg. 125 ft.

Pawnee County

Forest Dev. Corp. No. 1 Greisel, C NW NE sec. 21-21-5. Loc.

Forest Dev. Corp. No. 1 Otter, NE NW sec. 15-21-5. Wilcox 3,571 ft.; cg. at 3,614 ft.

Payne County

H. F. Young No. 1 Jenkins, SE NW SE sec. 4-17-3e. Oswego 3,775 ft.; Prue 3,-890 ft.; Miss. 4,298 ft.; drlg. 4,328 ft.

Pittsburg County

Okla. Dist. Oil Co. No. 1 Beeler, NE NE SW sec. 7-7-14. Wapanucka 4,490 ft.; T.D. 4,525 ft.; milling cores.

Pontotoc County

Caloma Oil Corp. No. 1 Brentz, SE NE SW sec. 4-1-6. S.D. 503 ft.

W. A. Delaney and Boettcher O. & G. Co. No. 2 Alexander, SW NE SW sec. 24-4-7. Old T.D. 3,520 ft.; cd. 4,490-4,500 ft.; shot 4,300-13 ft.; 1 bailer S.W. per hr.

E. H. Moore et al No. 1 Muse, SW NE SE sec. 33-2n-7. Wapanucka 2,405 ft.; drlg. 2,420 ft.

Ramsey Pet. Co. No. 1 Johnson, NW SW SE sec. 9-3-7. Wtr. sd. 2,422-27 ft.; McLish 2,475 ft.; Dense 2,765 ft.; Wilcox 2,835 ft.; T.D. 2,845 ft.; P.B. to 2,390 ft.; W.O.C.

L. K. Sandback et al No. 1 Whittaker, NW NE SE sec. 31-4-6. Cellar.

Pottawatomie County

Mid-Continent Pet. Corp. No. 1 Logan, NE NE SE sec. 31-11-15. Shot off drill pipe at 3,252 ft.; to whipstock.

Seminole County

Carter Oil Co. et al No. 1 Simpson, SW SW NE sec. 7-8-8. Br. L. 3,030 ft.; Booch 3,130 ft.

R. M. Purcell No. 1 Gilliland, SE SE SW sec. 24-11-7. Loc.

A. I. Spears No. 1 Keaton, NW cor. sec. 6-5-8. Rig.

Paul Traugh No. 1 Williams, NE SE NE sec. 22-6-6. Senora 2,347 ft.; T.D. 2,361 ft.; P. 75 B.O. and 15 B.W. in 24 hrs.; P.B. 2,360 ft.; W.O.C.

Texas County

Allison & Barnhill No. 1 Bingley, SE SE NE sec. 30-2n-18. (Cimmaron Meridian). Sd. 2,893 ft.; H.F.W. 2,893-2,919 ft.; to P.B. and shoot.

Washita County

L. P. McWhirter No. 1 fee, SW cor. sec. 34-8-19w. Drlg. 1,754 ft.; in hard red sd.

SOUTHERN OKLAHOMA

Atoka County

A. J. Sanders No. 3 Redden, SE SW SW sec. 19-1n-15e. S.D. 1,190 ft.; T.D.

Carter County

Head & Straus No. 1 Simpson & Fell, NW NW SE sec. 5-1s-3w. Cd. 1,484-87 ft.; S.O.; T.D. 1,506 ft.; to core.

Lyle-Wham Dev. Co. No. 1 Jackson, NE SW SW sec. 26-5s-1e. Mch. on loc.

Choctaw County

Cooper & Branstetter No. 1 Bell, C NW NE sec. 29-6s-17. Drlg. 1,080 ft.

Comanche County

Frank Scott No. 1-A Kuntz, SE NE SE sec. 21-4-11w. Woodford 896 ft.; Hunton 1,752 ft.; drlg. 1,852 ft.

C. V. Morris No. 1 Young, SE NE SE sec. 24-3n-10w. T.D. 682 ft.; S.D. for csg. blk.

L. D. Wise No. 1 Cones, SE SE SW sec. 11-1n-10w. T.D. 2,156 ft.; S.D.

Cotton County

Phillips Pet. Co. No. 1 Warren, C NE NE SE sec. 1-5s-13w. T.D. 3,404 ft.; to make chemical test to shut off wtr.

Harmon County

Lloalko Trust, Ltd. No. 1 Crosnoe, SE SE SW sec. 14-3n-25w. T.D. 2,950 ft.; S.D.O.

Jefferson County

Buffalo Oil Co. No. 1 Crownover, SE SE NW sec. 21-6s-6w. T.D. 230 ft.; S.D. for csg.

Massad & Swansberger No. 1 Barrett, NE cor. SE SE sec. 14-6s-6w. T.D. 1,282 ft.; S.D. for bits.

Johnston County

Patton et al No. 1 McCrummens, SW SW NE sec. 16-1s-6e. H.F.W. 680-90 ft.; drlg. 745 ft.

Love County

Amerada Pet. Corp. No. 1-A Westheimer & Daube, SW SE SW sec. 27-6s-2e. T.D. 7,363 ft.; P.B. 2,970 ft.; perforated csg. at 1,539-99 ft. and 2,095-2,115 ft.; cmtd. perf.; flwd. 22 bbls. in 24 hrs. and "went dead"; S.D.O. Aug. 4.

W. H. Riddle et al No. 1 Johnson, C SW SE cor. sec. 20-8s-2w. T.D. 4,009 ft.; waiting for tools; will deepen.

Sinclair Prairie Oil Co. No. 1 Stockton, SE SE SW sec. 26-6s-2w. T.D. 8,583 ft. per. csg. 6,260-94 ft.; swb. 45 B.O. and 20 B.W. in 24 hrs.

Marshall County

Magnolia Pet. Co. No. 1 Gardner, NE NE NW sec. 34-6s-6e. Drlg. L. 6,180 ft.

Stuart & Taylor No. 1 Chestnut, NE NE cor. sec. 23-8s-5e. O.W.D.D.; T.D. 770 ft.; S.D.

Murray County

Power Oil Co. et al No. 1 Lancaster Trust, C SW NE sec. 10-1s-2e. T.D. 3,203 ft.; S.D. for rotary tools.

J. Ben Russell No. 1 fee, SE SE NW SE sec. 9-2s-3e. Drlg. 930 ft.

Stephens County

Carter Oil Co. No. 1 Harley, C NE NE sec. 24-2s-4w. Bldg. drk.

Jack Cohen No. 1 Pierce, NE NE NW sec. 24-2s-6w. T.D. 400 ft.; S.D. for fuel.

Coline Oil Co. No. 1 Johnson, SW SE NW NE sec. 1-2n-8w. T.D. 6,500 ft.; to test shallow sds.

H. J. Edwards No. 1 Frederick, SW cor. NE SE NW sec. 31-2n-8w. T.D. 2,800 ft.; fsg.

Ed Parson No. 1 Olson, C SW SW sec. 31-2-8w. Tstd. mud, wtr. and S.O.; sd., odor oil and gas 6,856 ft.; T.D. 7,003 ft.; contract depth; S.D.

Tillman County

Indian Terr. Ill. Oil Co. No. 1 Hatler, C SW NE sec. 32-2s-17w. T.D. 5,169 ft.; P.B. to 4,525 ft.; set 7-in. csg. at 4,414 ft.; W.O.C.

Lynn Oliver No. 1 Rilling, SE SE NW sec. 22-1s-15w. Granite Wash 1,275-78 S.O.; T.D. 1,314 ft. S.D.

Shirley Clum et al No. 1 Moricle, NW NW SE sec. 16-4s-14w. Drlg. 2,775 ft.

ARKANSAS

Clark County

Pat Carlin et al No. 1 Bierne, NE SE NE sec. 22-10s-12w. Drk.

John G. Wooten No. 1 Z. T. Sparkman, sec. 1-11-20. 7-in. cmtd. 560 ft.; arg. test.

Cleveland County

J. R. Lockhart No. 1 Ida Robertson, SE cor. sec. 36-10-11w. T.D. 3,203 ft.; S.D.

Columbia County

Southern States Gas Co. No. 1 Piney Woods Lumber Co., NE NW sec. 10-20-22. D.&A. 1,924 ft.

Grant County

Wallace & Staples No. 1 W. F. Davis, SE SE NW sec. 23-6-15. Fsg. D.P. 2,580 ft.

Hempstead County

Birdwell et al No. 1 Duckett, SW NW SW sec. 24-13-24. S.D. 125 ft.

Root Pet. Co. No. 1 D. F. Jones, 330 ft. S and W, NE SW NE sec. 16-13-23. S.D. 3,740 ft.

Root Pet. Co. No. 1 Lucey, E. Drake, SE SE NW sec. 24-14s-24w. Loc.

Shephert & Todd et al No. 1 Smith, NW SW SE sec. 11-11-25. Drk.

W. E. Stewart No. 1 fee, SE NE NE sec. 31-12-23. Fsg. 3,945 ft.

Little River County

Roberts et al No. 1 Hall, sec. 22-13-29. T.D. 2,100 ft.; abd.

M. E. Sanderson No. 1 Pinning, sec. 6-13-30. Drlg. 250 ft.

Joe Strahan No. 1 Dierks, SW SE sec. 21-12-28. S.D. 1,190 tf.

Miller County

Harber & Parks No. 1 Dean, NW SE sec. 24-15-26. T.D. 4,386 ft.

Odell Hinson No. 1 Montana Realty Co., 330 ft. S and W NE NW NW sec. 3-17-28. Dropped drill pipe; S.D.; T.D. 5,325 ft.

C. V. Lenz No. 7 Dale, O.W.D.D., sec. 24-15-26. Flw. about 20 B.P.D.; T.D. 4,-217 ft.; W.O.S.R.

Nevada County

Benedum & Trees No. 1 Block, NE NE SE sec. 9-14-20. Cg. 3,620 ft.

Benedum & Trees No. 2 C. C. Fincher, SW SW NE sec. 10-14-20. 7-in. set 1,-258 ft.; W.O.C.S.

Benedum & Trees No. 4 Grove, SE SW NW sec. 10-14-20. Drk.

Benedum & Trees No. 5 Grove, NE SW NW sec. 10-14-20. T.D. 2,138 ft.; W.O.S.R.

Benedum & Trees No. 6 Grove, SW NE NW sec. 10-14-20. Drk.

Benedum & Trees No. 7 Grove, NW SW NW sec. 10-14-20. Drk.

Benedum & Trees No. 8 Grove, SW SW NW sec. 10-14-20. Drk.

Benedum & Trees No. 9 Grove, NE NE SW sec. 10-14-20. Drk.

J. C. Buckbee No. 1 Wortham, SW SW NW sec. 29-13-21. Drlg. 693 ft.

John R. Lewis No. 1 W. Haynie, SW SW NE sec. 5-14-20. Est. 15,000,000 ft. gas; 200 bbls. oil; S.D. 1,169 ft.; W.O.

Steel & Warmack No. 1 Wm. Haynil, SE SE NW sec. 6-14-21. T.D. 1,183 ft.; W.O.S.R.

Ouachita County

Lion Oil Co. No. 1 Blanch Levey, C W½ SW NW sec. 21-15-15. Cmtd. 16-in. 90 ft.; drlg. 108 ft.

Phillips Pet. Co. No. 1 W. Rose, SW NE sec. 27-15-15. Rmg. 4,866 ft.

J. D. Reynolds No. 2 P. C. Grayson, Lot 4, Blk. 10, Stephens Sur., sec. 21-15-19. H.F.O.; W.O.S.R.; T.D. 1,508 ft.

Pope County

Arkansas-La. No. 1 Smith, sec. 10-8n-21w. T.D. 3,992 ft.; set csg.; W.O.C.S.

Sevier County

C. J. Benkley No. 1 Luther Tabler, NW NE SE sec. 14-10s-29w. Drk.

Union County

Dietrich et al No. 1 Aaronson, NE SW NE sec. 3-18-16. R.U. and W.O.

McCreslen Oil Co. No. 4 L. Atkins, SE NW SE sec. 3-18-13. T.D. 3,563 ft.; W.O.S.R.

Fenn-Ark. Corp No. 1 W. N. Raulston, 330 ft. S and E. NW NW SE sec. 12-17-14. S.D. 2,901 ft.

S. H. A. Oil Corp. No. 1 H. D. Warren, NE SW SW sec. 10-17-14. Drlg. out cmt. 3,342 ft. and W.O.S.R.; T.D. 3,342 ft.

LOUISIANA

NORTH LOUISIANA PROVEN

Caddo-Rodessa

Ark.-La. Gas Co. No. 2 Teamer, NW SE SW sec. 13-23-16. 7-in. 6,074 ft.; T.D. 6,084 ft.

J. Edw. Jones No. 2-A Sharp, SW SE sec. 4-23-16. Loc.

J. Edw. Jones No. 3-A Sharp, SW SE sec. 4-23-16. Loc.

J. Edw. Jones No. 1-B Sharp, 297 ft. N, 151 ft. W, C sec. 4-23-16. Drlg. 1,925 ft.

J. Edw. Jones No. 2-B Sharp, 393 ft. N, 60 ft. W, C sec. 4-23-16. Loc.

Magnolia Pet. Co. No. 10-A Caddo Lvy. Bd., NE NW sec. 21-23-16. Drlg. 5,850 ft.

Magnolia Pet. Co. No. 11-A Caddo Lvy. Bd., SW cor. sec. 21-23-16. Loc.

Magnolia Pet. Co. No. 12-A Caddo Lvy. Bd., SE cor. sec. 21-23-16. Drlg. 5,245 ft.

Magnolia Pet. Co. No. 7 Foscue, NE cor. sec. 22-23-16. Drlg. 5,241 ft.

R. W. Norton No. 1 Payne, C SE SE sec. 27-23-16. Drlg. 7,538 ft.

R. W. Norton No. 2 Starke, 660 ft. N and E, SW sec. 16-23-16. Comp.; flowed 33 bbls. 2 hrs.; T.D. 6,005 ft.

R. W. Norton No. 3 Starke, 660 S and W cen. sec. 16-23-16. Loc.

Phillips No. 3 Rose McDonald, NE cor. sec. 17-23-15. Set 7-in. 6,133 ft.; T.D. 6,150 ft.; tstg.

Standard Oil Co. of La. No. 1 J. R. Hardin, 660 ft. N and E, C sec. 16-23-16. Cmtd. 7-in. 5,987 ft.; T.D. 6,004 ft.; W.O.C.S.

Standard of La. No. 1 Emma J. Parker, NE SE NW sec. 9-23-16. Loc.

United Gas No. 6 Brewer Unit, 655 ft. S and E, NW sec. 21-23-16. Cmtd. 7-in. 5,997 ft.; T.D. 6,005 ft.; W.O.C.S.

United Gas No. 5 fee 574, 655 ft. S and W. C. sec. 16-23-16. Cmtd. 7-in. 5,975 ft. T.D. 5,988 ft.; W.O.C.S.

United Gas No. 1-A Mitchell, 656 ft. N and W, SE cor. sec. 17-23-16. Loc.

United Gas No. 3 W. M. Mitchell, NE cor. 112-ac. tr., sec. 20-23-16. Cmtd. 7-in. 5,891 ft.; T.D. 5,930; W.O.C.S.

United Gas Co. No. 4 W. M. Mitchell, NW cor. sec. 20-23-16. Loc.

United Gas Co. No. 27 Rodessa O. & L. Co., NE NW sec. 15-23-16. Loc.

United Gas No. 1 Stephens, 655 ft. S and W, NE sec. 20-23-16. Drlg. 5,760 ft.

N. LOUISIANA WILDCATS

Bienville Parish

Lide & Greer No. 1 Smelley, 220 ft. N, 160 ft. W, SE SW NE sec. 13-16-5. Cg. 6,225 ft.

McDowell et al No. 1 Locke, NE cor. sec. 9-15-10. Drlg. 1,808 ft.

Seaboard No. 1 McGee, 660 ft. N and E, C sec. 3-16-6. Cg. 7,420 ft.

Bossier Parish

Ark.-La. No. 1 W. H. Davis, 660 ft. S. 1,-270 ft. E. NW NE NW sec. 8-17-11. Cmtd. 7-in.; T.D. 5,777 ft.; W.O.C.S.

LEGAL

Department of the Interior, U. S. Land Office, Las Cruces, New Mexico. Notice is hereby given that the SE¼ NW¼ Sec. 24, T. 17 S., R. 29 E., forty acres, in the Grayburg Oil and Gas Field, and the E½ E½, NW¼ NE¼, NE¼ NW¼ Sec. 25, N½ NE¼, S½ SW¼ and NW¼ SW¼ Sec. 26, T. 16 S., R. 31 E., N.M.P.M., 440 acres, in the Robinson Field, New Mexico, are offered to the responsible qualified bidder of the highest bonus per acre for lease under section 17 of the act of February 25, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674), at the royalty rate scale in the lease form shown in Circular 1386, at a sale to be held in the United States Land Office, Las Cruces, New Mexico, at 10 o'clock, February 23, 1937. The minimum bid which will be accepted is $25 per acre for the land in Sec. 24 and $1.25 per acre for the land in the Robinson Field. The land in each field will be offered as a single unit but both units may be included in one lease, the drilling, producing, rental and royalty provisions to apply separately to each unit. The successful bidder must deposit on the day of the sale a certified check on a solvent bank, or cash, for one-fifth of the amount of each bid and file the showing of qualifications to receive a lease required by section 7 of Circular 1386. The remainder of the bonus bid and the annual rental at the rate of $1 per acre must be paid prior to the issuance of the lease. The bidders are warned against violation of the provisions of section 59 of the United States Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids at the discretion of the Secretary of the Interior. Register.

Arkansas-La. No. 1 R. Hardeman, SE cor. sec. 6-17-11. Loc.
Ark.-La. Gas No. 1 P. Potter, SW sec. 8-17-11. Cmtd. 7-in. 4,295 ft.; W.O.C.S.
Arkansas-La. No. 1 Tom Wilson, SW sec. 8-17-11. Loc.
La. Pet. Corp. et al No. 1 Edwards Est., NW SW sec. 5-17-11. Drlg. 2,620 ft.
Haynes Drlg. Co. No. 1 A. J. Murff, NE SE sec. 35-17-12. Drk.
Plain Drlg. Synd. No. 1-B S. H. Bollinger, SE SW NE sec. 36-23-13. R.U.
Tidwell et al No. 1 Natting, sec. 15-23-14. T.D. 2,954 ft.; S.D.
Triangle Drlg. Co. No. 1-I Skannal, NE cor. sec. 22-17-12. Drlg. 4,606 ft.
Triangle No. 1-H Skannal, SE SW SW sec. 23-17-12. Loc.
United Gas No. 1 H. G. Freeman, SE cor. sec. 15-17-12. Drlg. 4,277 ft.
United Gas No. 1 Henderson, NE cor. sec. 36-17-12. R.U.
United Gas No. 1-H A. C. Skannal, NE SE sec. 26-17-12. Drlg. 925 ft.

Caddo Parish

W. D. Chew No. 1-D Levee Bd., NW SE NE sec. 34-21-16. T.D. 1,683 ft.; tstg. S.W.; S.D.; W.O.
Paul Cooper No. 1 Rodgers, NW SW SW sec. 11-20-15. T.D. 2,000 ft.; S.D.

LEGAL

Call for Bids to Purchase Royalty Oil Accruing to the United States from the Lance Creek, Wyoming, Oil Field. Pursuant to the provisions of Section 36 of the act approved February 25, 1920 (41 Stat. 437), sealed proposals, in duplicate, will be received in the Office of the Secretary of the Interior, Washington, D. C., on or before noon on February 15, 1937, from responsible bidders for the purchase, for a period of three or five years, beginning April 1, 1937, of all royalty oil accruing to the United States from all productive formations from the surface to and including the Basal Sundance from Government lands in the Lance Creek, Wyoming, oil field. For the calendar year 1934 the total Government royalty oil from the Lance Creek field amounted to approximately 10,406 barrels; during 1935 it amounted to approximately 33,664 barrels; and during 1936, by months, it has been approximately as follows: January, 2,988 barrels; February, 3,484 barrels; March, 5,946 barrels; April, 5,917 barrels; May, 4,003 barrels; June, 2,848 barrels; July, 10,944 barrels; August, 6,256 barrels; September, 7,751 barrels; October, 7,334 barrels. The monthly figures listed hereinabove indicate that the average monthly Government royalty production for the period January to October, 1936, inclusive, amounted to approximately 5,747 barrels. During the periods mentioned the range in gravity was from 36 to 47 degrees A. P. I. The approximate gravity of oil from the Dakota sand is 45°, from the upper Sundance sand 38°, and from Basal Sundance sands 47°. Additional information may be obtained from the Director, Geological Survey, Department of the Interior, Washington, D. C., or the Supervisor, Geological Survey, Casper, Wyoming. Bids are invited upon two separate items, as follows: Item 1. All royalty oil for the period beginning April 1, 1937, and ending March 31, 1940. Item 2. All royalty oil for the period beginning April 1, 1937, and ending March 31, 1942. Bids must be in the following form: "For Item —— for the period beginning April 1, 1937, and ending March 31, 19—, (name of bidder) offers a premium of —— cents per barrel above the highest field price for oil of 40° A. P. I. gravity for the Salt Creek field, Wyoming, as published or offered on any basis of tank measurement reported in terms of capacity tables of not less than 97 percent by the principal purchaser of oil in said field, or if the highest field price for oil of 40° A. P. I. gravity in Oklahoma and Kansas, as similarly published or offered by at least two of the five principal purchasers of oil be higher than the said price for the Salt Creek field, said premium is offered above said higher price, the applicability of any such price to be determined by the Secretary of the Interior." Delivery of royalty oil will be made on the respective leaseholds without cost to the Government to the successful bidder or for his account. The lessee provide that the lessee shall not be required to hold such royalty oil in storage longer than 30 days after the end of the calendar month in which said oil is produced. Payments for the royalty oil are to be made by check or draft drawn to the order of the Commissioner of the General Land Office and transmitted to the Supervisor, Geological Survey, Casper, Wyoming, on or before the last day of each month following the month in which delivery is made. The volume of said royalty oil will be determined in accordance with existing departmental orders and regulations requiring the measurement of Government royalty oil on the basis of 100 percent capacity tables in terms of 42 United States gallons of 231 cubic inches at a temperature of 60 degrees F. Each bidder must submit with his bid a bond in the sum of $750.00 or a certified or cashier's check or draft for that amount, payable to the order of the Secretary of the Interior, as a guarantee that he will, if successful, promptly execute a satisfactory contract and furnish an acceptable bond in the sum of $40,000. conditioned on a full and complete compliance with the terms of the contract. The Secretary of the Interior may accept any bid which in his judgment is most advantageous to the Government, but reserves the right to reject all bids whenever in his judgment the interests of the United States so demand. Sealed bids are to be submitted to the Secretary, Department of the Interior, Washington, D. C., the envelope to be marked plainly, "Bid on Lance Creek royalty oil." No bid received after the time herein fixed for submitting bids will be considered. (Sgd.) Harold L. Ickes, Secretary of the Interior. December 31, 1936.

Custer Oil Co. No. 1 Wemple, N½ NW sec. 14-20-15. S.D. 1,650 ft.; rig rep.
DeMaggo et al No. 1 Huckaby, SE NE SE sec. 26-22-16. Cmtd. 10-in. 42 ft.
Gulf Ref. Co. No. 1 E. P. Hatcher, 660 ft. N and E, SW cor. SE¼ sec. 11-17-15. T.D. 8,307 ft.; arrng. set. csg.
B. F. Laney No. 1 Taylor, SW SE SW sec. 17-21-14. S.D. 800 ft.; rig rep.
Lawrence Potter No. 1 Head, NE NE sec. 26-21-15. S.D. 2,310 ft.
F. L. Luckett No. 1 Connell, SW NE sec 10-20-15. 6-in. cmtd. 2,174 ft.; T.D. 2,203 ft.; blg. to test.
Lyons & Neely No. 1 Noel, SE cor. sec. 8-23-15. Loc.
Lyons & Neely No. 2 Noel, SW SE SE sec. 8-23-15. Loc.
Maja Oil Co. No. 1 Hyman, 950 ft. W, 860 ft. N. SE cor. sec. 10-20-15. Drk.
Maja Oil Co. No. 2 Self, SE NE SE sec. 10-20-15. Loc.
Matt M. Press No. 1 Keller, SE cor. sec. 10-20-15. T.D. 2,255 ft.; W.O.S.R.
Rodgers et al No. 1 Thompson, NW SW SW sec. 11-20-15. S.D. 1,740 ft.
Stanolind O. & G. Co. No. 8 Christian, SE NW sec. 27-21-15. T.D. 1,423 ft.; acid.; W.O.S.R.
Stanolind No. 116 Dillon, SE SE sec. 14-21-15. Drk.
Stanolind O. & G. Co. No. 117 Dillon, NE SE sec. 14-21-15. Loc.
Stanolind O. & G. Co. No. 118 Dillon, SE cor. sec. 14-21-15. Loc.
Stanolind O. & G. Co. No. 119 Dillon, SE NE sec. 14-21-15. Loc.
Stewart No. 1 Morgan, SW NE sec. 10-20-15. Drk.
Morefield & Prine No. 3 Stokeley, sec. 5-20-16. 6-in. cmt. and perf.; T.D. 957 ft.; W.O.C.S.
J. J. Thompson No. 1 Gamm, NE SW NW sec. 35-21-15. Drlg. 1,355 ft.

Caldwell Parish

G. W. Zeigen et al No. 8 La. Cen. Lbr. Co, SE cor. sec. 4-14-2e. Drlg. 1,500 ft.

Catahoula Parish

Balcones Corp. No. 1 T. J. Chisholm, 1,500 ft. N, 2,500 ft. W, SE cor. sec. 19-10-8e. R.U.

Claiborne Parish

Max Hirsch et al No. 1 C. O. Ferguson, 2,640 ft. N, 1,000 ft. E, SW cor. sec. 29-22-6w. Drlg. 4,800 ft.
United Gas et al No. 1 R. Simms, NW cor. sec. 32-20-5w. Cg. 5,374 ft.

De Soto Parish

Benedum & Trees No. 1 Clifton, NE NW sec. 33-13-12. Drk.
Chamberlin et al No. 1 Lanier, 280 ft. N and E, SW NE sec. 29-11-11. Drk.
Fite et al No. 1 Ramsey, sec. 36-11-11. W.O.; S.D. 1,804 ft.
Gulf Ref. Co. No. 36-A Jenkins, SE cor. sec. 2-12-12. Drk.
Peral Oil Co. No. 1 Joyner, SE NW SW sec. 28-11-12. Cmtd. 8-in. 2,885 ft.; T.D. 5,897 ft.; prep. testg.
Rio Rajo Oil Co. No. 7 Prudhomme, SE cor. sec. 20-12-11. S.D. 1,250 ft.
Stillers et al No. 2 Jenkins, 330 ft. S and W, NE SE NW sec. 35-13-12. S.D. 2,503 ft.; fuel.
S. M. Sundby No. 1 A. P. Garland, NW SW sec. 7-14-14. S.D. 3,050 ft.
Vaughn Prod. Co. No. 1 Sample, 330 ft N and E, SW NE SE sec. 24-11-14. Drlg 5243 ft.

Grant Parish

Cane River Prod. Co. No. 1 Swope, SW NW sec. 17-9-1e. T.D. 1,609 ft.; W.O.S.R.
Grant Oil Corp. No. 1 Holmes, 300 ft. N, 150 ft. E, SW NE SW sec. 17-9-1e. T.D. 1,609 ft.; W.O.S.R.
T. W. Tannin No. 1 Kees, SE sec. 18-9-1e. T.D. 1,609 ft.; W.O.S.R.

Morehouse Parish

S. D. Hunter No. 11 Allison, 4,402 ft. E. 2,423 ft. S, NW cor. sec. 1, in sec. 47-20-4e. T.D. 2,215 ft.; tstg.
Interstate Fee No. 56, NE cor. sec. 27-20-3e. Drlg. 2,000 ft.

LaSalle Parish

Ark Fuel No. 13-B Urania, NW NE NE sec. 18-10-2e. Comp.; A.G.L. 200 B.P.D. T.D. 1,518 ft.
Ark Fuel No. 14-B Urania, NE cor. sec. 18-10-2e. R.U.

Ouachita Parish

Hope Prod. Co. No. 7 Call, NW cor. sec. 43-19-4e. R.U.
United Carbon No. 7 Neston, NE cor. sec. 32-19-4e. Cmtd. 10-in. 189 ft.

Red River Parish

Gulf No. 25 Kennedy, NW cor. sec. 24-13-11. Drlg. 2,508 ft.
Peria Oil Co. No. 1 DeLong, 330 ft. S and E. C sec. 23-12-10. S.D. 2,800 ft.

Richland Parish

Gulf Ref. Co. No. 15 R. R. Rhymes et al, sec. 32-17-6e. Drlg. 9,007 ft.

Sabine Parish

Blue Lake Oil Co. No. 1 Delaney & Wheless, NW SW sec. 31-9-13. Arg. to test; T.D. 2,032 ft.
Earl F. Fox No. 1 Blankenship, NE SE NW sec. 13-9-12. Drlg. 988 ft.
Posey Sisters Oil Co. No. 3 Burkett, NE cor. sec. 10-9-13. S.D. 3,234 ft.
Willis & Dowden No. 1 Lynch, SW NE SW sec. 29-9-13. T.D. 1,608 ft.; arg. tst.

Union Parish

Interstate Nat. Gas No. 61 fee, SE sec. 1-20-3e. Comp.; 5,000,000 ft. gas.; T.D. 2,171 ft.
Interstate Nat. Gas Co. No. 62 fee, SE cor. sec. 36-21-3e. Comp.; 24,000,000 ft. gas; T.D. 2,180 ft.
Interstate Nat. Gas No. 16 Grayling, 660 ft. N, 1,375 ft. W, SE cor. sec. 20-21-4e. 6-in. cmtd. 2,128 ft.
So. Carbon Co. No. 17 Grayling, SW cor. sec. 21-21-4e. R.U.
So. Carbon No. 18 Grayling, SE cor. sec. 20-21-4e. Loc.

Webster Parish

Magnolia Pet. Co. No. 5 J. Cox, SW SE sec. 23-21-10. Drlg. 8,425 ft.
Ohio Oil Co. No. 1 S. P. D. Coyle, NW SE SW sec. 23-21-10. Loc.
Ohio Oil Co. No. 1 H. M. Coyle, NE SE sec. 22-21-10. Comp.; 228 bbls. dist.; 2,000,000 ft. gas; T.D. 8,194 ft.
Ohio Oil Co. No. 2 A. H. Gray Acct. No. 2, NW sec. 26-21-10. Loc.
Ohio Oil Co. No. 2 A. J. Hodges, NE NW SW sec. 23-21-10. Loc.
Red Hawk Oil Co. No. 1 Mayfield, sec. 9-23-9. Fsg. D.S. 2,802 ft.
Standard Oil Co. of La. No. 1 E. Firdecker, 1,320 ft. E. 1,316 ft. S. NW cor. sec. 2-17n-9w. Cg. 6,059 ft.
Tide Water No. 1 L. Pipes, NE SE sec. 10-18-10. Cg. 5,566 ft.
United Gas No. 2 Davis, 660 ft. S and E, NW cor. sec. 23-21-10. S.D. 8,030 ft.; high water.
United Gas No. 1 Mixon, SE SW sec. 22-21-10. Drlg. 7,725 ft.

Winn Parish

G. W. Zeigen No. 9 La. Cen. Lbr. Co., SE NE sec. 20-13-1e. R.U.

SOUTH LOUISIANA FIELDS

Ansela Butte—St. Martin Parish

Stanolind O. & G. Co. No. 1 Patin, sec. 46-9s-5e. 13⅜-in. csg. 1,514 ft.; drlg. salt 6,346 ft.

Bay St. Elaine—Terrebonne Parish

Texas Co. No. 13 State, sec. 17-22s-18e. Drlg. 3,910 ft.

Bayou Bouillion—Iberville Parish

S. C. Yingling No. 1-A State, sec. 13-9s-8e. Drlg. sh. 3,000 ft.

Bayou Mallett—Acadia Parish

Superior Oil Prod. Co. No. 1 Savoie, sec. 47-7s-1e. Top sd. 6,983 ft.; T.D. 6,985 ft.; 7-in. csg. 6,980 ft.; swbg.

Caillou Island—Terrebonne Parish

Texas Co. No. 33 State, sec. 20-23s-20e. T.D. 4,941 ft.; P.B. and S.T.; drlg. sdy. sh. 4,839 ft.

Charenton—St. Mary Parish

Pan American Prod. Co. No. 2 Laws Realty Co., sec. 30-13s-10e. Drlg. sdy. sh 5,848 ft.
Pan American Prod. Co. No. 1 South Coast Corp., sec. 30-13s-10e. Drlg. sdy. sh. 4,105 ft.

Choctaw—Iberville Parish

Standard Oil Co. No. 9 Myrtle Grove, sec. 53-9s-11e. R.U.

Cameron Meadows—Cameron Parish

Burton Sutton Oil Co. No. 16 Sch. Ld., sec. 16-14s-13w. Set 10¾-in. csg.; T.D. 4,851 ft.; P.D. 4,440 ft.; rng. screen and lnr.
Burton Sutton Oil Co. No. 18 School Ld., sec. 16-14s-13w. Drk.
Magnolia Pet. Co. No. 19 Cameron Meadows, sec. 16-14s-13w. T.D. 4,714 ft.; recvd. 2,500 ft. of P.L.O. on D.S.T.; 9⅝-in. csg. 4,694 ft.

Darrow—Ascension Parish

Humble O. & R. Co. No. 4 Community, sec. 33-2e. Drk.
Humble Oil & Ref. Co. No. 14 Community, sec. 29-10s-2e. Loc.
Humble O. & R. Co. No. 8 Gumble. T.D. 6,272 ft.; salt; P.B. 4,343 ft.; abd.

Dog Lake—Terrebonne Parish

Texas Co. No. 4 State, sec. 5-22s-16e. T.D. 5,342 ft.; sdtrkd. at 5,185 ft.; no report.

Four Isle—Terre Bonne Parish

Texas Co. No. 8 State. Drlg. sh. 6,837 ft.

Fausse Point—Iberia Parish

Texas Co. No. 2 State, sec. 35-11s-8e. 7-in. csg. 6,444 ft.; cd. salt 7,151-57 ft.; S.D.

Gillis—Calcasieu Parish

Fohs Oil Co. No. 17 O. H. Castle, sec. 14-9s-8w. Drk.
Fohs Oil Co. No. 1 Daharsh, sec. 14-9s-8w. T.D. 7,054 ft.; 7-in. csg. 7,054 ft.; I.P. 454 B.P.D. through 14/64-in. ck.
Texas Co. No. 12 Nickerson, sec. 1-9s-8w. Dredge canal.
Union Sulphur Co. No. 12 Barbe, sec. 1-9s-8w. Drlg. sh. 8,188 ft.
Union Sulphur Co. No. 2 Bel, sec. 12-9s-8w. T.D. 6,788 ft.; P.B. 5,271 ft.; sidetracked. T.D. 8,290 ft.; 5-in. csg. 8,282 ft. flwd. 200 bbls. oil; started making S.W.; reworking.
Union Sulphur Co. No. 1 McIver, sec. 14-9s-8w. R.U.
Union Sulphur Co. No. 1 McIver, sec. 14-9s-8w. T.D. 1,356 ft.; rng. csg.
Union Sulphur Co. No. 10 Powell, sec. 29-7s-2w. T.D. 7,217 ft.; sdtrkd. at 6,899 ft.; drlg. sh. 7,351 ft.
Union Sulphur Co. No. 11 Powell, sec. 12-9s-2w. Drlg. sh. and L. 6,382 ft.
Union Sulphur Co. No. 13 State, sec. 12-9s-8w. Drk.
Union Sulphur Co. No. 15 State, sec. 12-9s-8w. Drk.

Hackberry—Cameron Parish

W. T. Burton Oil Co. No. 1 R. L. Lewis, sec. 22-12s-10w. T.D. 3,697 ft.; hole heaving.
Gulf Oil Corp. No. 22 Erwin, sec. 12-12s-10w. T.D. 6,190 ft.; 7-in. csg. 6,190 ft.; flwd. 638 bbls. of oil; started flwg. S.W.; W.O.
Independent Oil Co. No. 1 Sanner, sec. 13-12s-10w. Drlg. sh. 1,703 ft.
Stanolind Oil & Gas Co. No. 1 J. H. Dahan, sec. 27-12s-10w. R.U.
Stanolind O. & G. Co. No. 24-B Gulf Ld. sec. 14-13s-10w. T.D. 6,565 ft.; drill stem stuck; P.B. 3,700 ft.; abd.
Stanolind O. & G. Co. No. 1 M. J. Muller, sec. 23-12s-10w. Drlg. sd. and sh. 1,199 ft.
Superior Oil Prod. Co. No. 1 C. Hebert Estate, sec. 33-12s-10w. Drlg. sd. and clay 600 ft.
Sutton Joint Interest No. 1 Portie, sec. 32-12s-10w. S.D. oil sd. 4,396 ft.
Texas Co. No. 20 State, sec. 12-12s-10w. Drlg. L. 7,200 ft.
Union Sulphur Co. No. 42 Walkins, sec. 13-12s-10w. R.U.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 6 Banta, sec. 40-13s-9e. T.D. 6,801 ft; 7-in. csg. 6,861; perf. csg. 6,440-50 ft.; tstg.
Herton Oil Co. No. 7 Banta, sec. 40-13s-9e. R.U.
Herton Oil Co. No. 4 Carter, sec. 35-13s-9e. Drlg. sh. and shells 5,541 ft.
A. U. Morrison No. 1 Matilda Plantation, sec. 70-13s-9e. Drlg. sh. and shells 5,536 ft.
Philtop O. & G. Co. No. 1 Eaves, sec. 79-13s-9e. Drk.

Jennings—Acadia Parish

Cosmo Pet. Co. No. 5 Jennings Clement, sec. 46-9s-2w. T.D. 1,642 ft.; 4½-in. csg. 1,590 ft.; tstg.
Lake City Oil Co. No. 2 Jennings Synd., sec. 46-9s-2w. Drk.
T. C. Markly No. 1 Gourney, sec. 42-9s-2w. Drk.
Shell Pet. Corp. No. 2 Community, sec. 40-9s-2w. T.D. 7,185 ft.; tried to blow out; drill stem stuck; fsg.
Stanolind O. & G. Co. No. 18 Houssiere-Latrelle, sec. 47-9s-2w. Drlg. sd. 5,448 ft.
Superior Oil Prod. Co. No. 1 Iowa-Jennings, sec. 41-9s-2w. Drlg. sd. and sh. 4,387 ft.
Superior Oil Prod. Co. No. 2 Leckcit, sec 42-9s-2w. Drlg. sd. 4,861 ft.

Lafitte—Jefferson Parish

Texas Co. No. 6 Lafitte, sec. 20-17s-24e. Drlg. 1,963 ft.
Texas Co. No. 6 Rigolettes, sec. 39-17s-24e. R.U.

Lake Barre—Terrebonne Parish

Texas Co. No. 37 Lake Barre State. Drlg. sh. 9,874 ft.

Lake Hermitage—Plaquemines Parish

Gulf Oil Corp. No. 6 LaFourche, sec. 11-8s-25e. Drlg. sh. 3,812 ft.

Lake Pelto—Terrebonne Parish

Texas Co. No. 15 State, sec. 17-23s-19e. Drlg. sd. 7,015 ft.; no report.

Leesville—Lafourche Parish

Carter-Michael No. 1 E. S. Bernard, sec. 26-21s-22e. Washing to bottom 5,592 ft.
Gulf Oil Corp. No. 1-A City of New Orleans, sec. 35-21s-22e. Drlg. sdy. sh. and L. 4,424 ft.
Gulf Oil Corp. No. 4 City of New Orleans sec. 25-21s-22e. T.D. 5,945 ft.; P.B. 1,071 ft.; to sdtrk.
Texas Co. No. 58 Leesville, sec. 27-21s-22e. 10¾-in. csg. 765 ft.; W.O.C.

New Iberia—Iberia Parish

Wm. Hellis No. 5 Bernard, sec. 54-12s-7e. T.D. 4,604 ft.; oil sd.; 7-in. csg. 4,496 ft.
Wm. Hellis No. 6 Bernard, sec. 54-12s-7e. Loc.
Wm. Hellis No. 7 Bernard, sec. 54-12s-7e. Loc.
Wm. Hellis No. 4 Bolivar, sec. 56-12s-7e. R.U.
Wm. Hellis No. 4 Bullock & Burke, sec. 25-12s-7e. Drlg. sd. and L. 4,505 ft.
Wm. Hellis No. 3 Sabatier, sec. 54-12s-7e. Abd. 3,133 ft.
Wm. Hellis No. 2 Schwing, sec. 56-12s-7e. T. D. 2,451 ft.; twisted off drill stem; P.B. 1,760 ft.; abd.
Wm. Hellis No. 3 Schwing, sec. 57-12s-7e. Loc.
Kitos et al No. 3 Sealy, sec. 36-12s-7e. 9⅝-in. csg. 874 ft.; drlg. sh. 4,787 ft.
Texas Co. No. 1 Clementine, sec. 25-12s-1e. Drlg. sd. and sh. 5,683 ft.
Texas Co. No. 3-B Hanzen, sec. 54-12s-7e. Oil sd. 4,818-27 ft.; T.D.; rng. csg.

Port Barre—St. Landry Parish

Pan American Prod. Co. No. 3 Cormier, sec. 4-6s-5e. Drlg. sh. 2,016 ft.

Roanoke—Jefferson Davis Parish

Humble O. & R. Co. No. 6-B J. W. Devilbiss, sec. 11-9s-4w. Drlg. sh. and L. 4,735 ft.
Shell Pet. Corp. No. 6 Kratzer, sec. 13-9s-4w. 10¾-in. csg. 2,454 ft.; cg. sh. 3,321 ft.

Sorrento—Ascension Parish

Sorrento Oil Co. No. 1 Bernard, sec. 1-9s-14e. T.D. 5,068 ft.; washing to bottom.

St. Martinsville—St. Martin Parish

Continental Oil Co. No. 1-A fee, sec. 19-11s-6e. O.W.D.D.; S.O.; P.B. and sdtrkd.; T.D. 7,985 ft.; P.B. 7,420 ft.; D.S. stuck; abd.

Starks—Calcasieu Parish

J. R. Turnbull No. 1 Industrial Lbr. Co. sec. 20-9s-12w. S.D. 6,433 ft.

Sulphur—Calcasieu Parish

Union Sulphur Co. No. 339 fee, sec. 30-

9s-10w. 10¾-in. csg. 1,010 ft.; T.D. 3,932 ft.; 7-in. csg. 3,923 ft.; tstg.

Union Sulphur Co. No. 840 fee, sec. 29-9s-10w. Bldg. drk.

Union Sulphur Co. No. 841 fee, sec. 29-9s-8w. T.D. 4,456 ft.; 7-in. csg. 4,436 ft.; P.B. 4,440 ft.; tstd. S.W.

Union Sulphur Co. No. 842 fee, sec. 29-9s-10w. Drlg. gmb. and L. 4,732 ft.

Union Sulphur Co. No. 843 fee, sec. 20-9s-10w. Drlg. sdy. sh. 4,918 ft.

Tepetate—Acadia Parish

Continental Oil Co. No. 9-A Homeseekers Dev. Co., sec. 29-7s-2w. T.D. 8,314 ft.; rng. 5¾-in. csg.

Continental Oil Co. No. 10-A Homeseekers Dev. Co., sec. 29-7s-2w. T.D. 8,320 ft.; rng. 5¾-in. csg.

Continental Oil Co. No. 11-A Homeseekers Dev. Co., sec. 29-7s-2w. Drlg. sh. 1,515 ft.

Continental Oil Co. No. 1-D Homeseekers Dev. Co., sec. 29-7s-2w. T.D. 8,342 ft.; P.B. to 3,600 ft.; drlg. sh. 4,316 ft.

Continental Oil Co. No. 2 P. O. Johnson, sec. 30-7s-2w. Drk.

Valentine—Lafourche Parish

Pan American Prod. Co. No. 2 Harang, sec. 8-17s-20e. Drlg. 1,510 ft.

White Castle—Calcasieu Parish

Shell Pet. Corp. No. 4 Shingle, sec. 12-11s-12e. T.D. 8,394 ft.; P.B. 7,701 ft.; fsg.

S. LOUISIANA WILDCATS

Acadia Parish

H. E. Dalton No. 1 Setting, sec. 17-7s-1w. S.D. 5,047 ft.; laying gas line.

Humble O. & R. Co. No. 1 Nordyke, sec. 23. T.D. 6,855 ft.; drlg. 6,850 ft. in sdtrkd. hole.

Allen Parish

Humble O. & R. Co. No. 3 Bel, located in cratered hole, sec. 26-6s-7w. 10¾-in. csg. 165 ft.; T.D. 2,870 ft.; 7-in. csg. 2,766 ft.; shot well; failed to stop flwg. B.W.; S.D.

Avoyelles Parish

Coastal Mineral Dev., Inc., No. 1 Purdy-Hess, sec. 25-2n-3e. Drk.

George Conover No. 1 Purdy-Hess, sec. 36-2n-3e. Drk.

Frost Oil Co. No. 1 Hines Lumber Co., sec. 3-3n-4e. Drk.

Calcasieu Parish

D. D. Oil Co. No. 1 Lutcher Moore, sec. 1-8s-13w. Drlg. sh. 1,780 ft.

Wilfred Lahaye No. 1 Bass, sec. 9-10s-12w. S.D. 80 ft.

Cameron Parish

Magnolia Pet. Co. No. 1 Gray Hrs., sec. 8-15s-14w. T.D. 2,902 ft.; drlg. plug.

Pure Oil Co. No. 1 Mallard Bay, sec. 22-13s-3w. 18⅝-in. csg. 1,499 ft.; 9⅝-in. csg. 7,906 ft.; drlg. sh. 9,219 ft.

Southern Sulphur Co. No. 2 State, sec. 29-15s-10w. S.D. 1,410 ft.

East Baton Rouge Parish

Cavalier Oil Co. No. 1 Vingnes, sec. 40-8s-2e. T.D. 6,690 ft.; D.S. stuck.

Cavalier Oil Co. No. 1 Young, sec. 62-4s-2w. Abd. loc.

Evangeline Parish

La. Crusader Oil Co. No. 1 Hattie Haas, sec. 2-3s-5e. Drk.

Drunella Oil Co. No. 1 Caldwell, sec. 41-13s-4e. R.U.

East Feliciana Parish

East Feliciana Oil No. 1 West & Budding sec. 37-1s-1w. Spudded 15 ft. and S.D.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 2-A Wilbert sec. 74-9s-10e. T.D. 1,760 ft.; 7-in. csg. 1,753 ft.; I.P. 2 B.P.H. through ¼-in. ck.; T.P. 500 lbs.; C.P. 564 lbs.

Iberia Parish

Jefferson Lake Oil Co. No. 414 State Lake Pigneur, Twp. 12s-5e. Top salt 990 ft.; S.D. 3,950 ft.

Texas Co. No. 1-B State, Vermilion Bay sec. 16-15s-6e. T.D. 10,312 ft.

Jefferson Parish

Triangle Oil Co. No. 1 Conroe, sec. 121 12s-11e. S.D. 2,165 ft.

Jefferson Davis Parish

H. M. Naylor No. 2 Johnson-Bourdreaux, sec. 39-10s-3w. Drlg. sh. 1,820 ft.

Shell Pet. Corp. No. 1 Joe Sturdivant sec. 25-10s-4w. 10¾-in. csg. 2,616 ft. T.D. 9,747 ft.; fsg.

Stanolind O. & G. Co. No. 1 Calcasieu Natl. Bank, sec. 28-7s-3w. Drlg. L. 6,927 ft.

Stanolind O. & G. Co. No. 1 United Life Accident Co., sec. 16-11s-5w. R.U.

Lafourche Parish

Pohs Oil Co. No. 1 State Lake, sec. 65-17s-19e. Dredging canal.

Wm. Helis No. 1 City of New Orleans sec. 19-23s-23e. Drlg. sh. 6,827 ft.

Livingston Parish

Coastline Oil Co. No. 1 Addison Trust Co., sec. 7-7s-3e. Drk.

Plaquemines Parish

Gulf Oil Corp. No. 1 Bay-Adams, sec. 25 32s-19. T.D. 2,715 ft.; washing to bottom.

Tide Water Oil Co. No. 2 Manhattan Fruit Co., sec. 34-21s-22e. T.D. 4,762 ft.; P.B. 1,920 ft.; drlg. sh. 3,730 ft.

St. Bernard Parish

Gulf Oil Corp. No. 1 Lake Lery, sec. 28-14s-14e. Drlg. sh. 3,915 ft.

Southern Sulphur Co. No. 2 State Lake Borgne, sec. 38-14s-15e. T.D. 1,420 ft.; 13⅜-in. csg. 303 ft.; drlg. plug.

St. Landry Parish

Superior Oil Prod. Co. No. 2 A. Savoie, sec. 26-8s-3e. 11¾-in. csg. 1,180 ft.; drlg. sd. and sh. 2,951 ft.

St. Martin Parish

Shell Pet. Corp. No. 1 Hefla Ld. Co., sec. 38-8s-5e. Cg. sandstone 9,001 ft.

Texas Co. No. 9 St. Martin, sec. 21-8s-7e 18⅝-in. csg. 106 ft.; drlg. sdy. sh. 6,346 ft.

Texas Co. No. 3 State, sec. 14-10s-9e Driving piling.

St. Mary Parish

Texas Co. No. 1 Horse Shoe Bayou, sec. 40-17s-9e. Drlg. sh. and L. 10,095 ft.

Terrebonne Parish

Humble O. & R. Co. No. 1 H. J. Ellender, sec. 23-19s-19e. T.D. 8,391 ft.; P.B. 7,300 ft.; W.O.C.

Shell Pet. Corp. No. 1-B Realty, sec. 19 17s-15e. Cg. sh. and sd. 8,692 ft.; showed gas and oil-cut mud on D.S.T. 8,630-65 ft.

Vermilion Parish

Continental Oil Co. No. 1 O. C. Hebert, sec. 20-12s-3e. T.D. 11,732 ft.; circulating with mud; well tried to blow out; fsg. for stuck D.S.; hole cleaned to 10,680 ft.; set cmt.; P.B. to 10,800 ft.; sdtrkd at 10,800 ft.; T.D. 12,216 ft.; 5-in. csg. 11,795 ft.; waiting on drill pipe.

Stanolind O. & G. Co. No. 1 Fred Stovall, 13⅜-in. csg. 1,980 ft.; drlg. sh. 11,532 ft.

Texas Co. No. 5 Leider, H. N. Little Sur. Drlg. sh. 4,119 ft.

West Columbia—Brazoria County

Texas Co. No. 1 Hogg, G. Tennille Sur. T.D. 2,872 ft.; P.B. 2,750 ft.; 7-in. csg. 2,725 ft.; drlg. plug.

Old Ocean—Brazoria County

Harrison and Abercrombie No. 3 Bernard River, Charles Breen Sur. 9⅝-in. csg. 6,070 ft.; drlg. sd. 9,946 ft.

Heyser—Calhoun County

Humble O. & R. Co. No. 5 E. H. Welder, J. M. Rios Sur. R.U.

Humble O. & R. Co. No. 7-A P. H. Welder, A. Sisneros Sur. T.D. 5,470 ft.; 7-in. csg. 5,470 ft.; tstd. gas; pulling screen.

Humble O. & R. Co. No. 8-A P. H. Welder, J. M. Rios Sur. Drk.

Humble O. & R. Co. No. 9-A P. H. Welder, A. Sisneros Sur. Drk.

Humble O. & R. Co. No. 8-B P. H. Welder, A. Sisneros Sur. T.D. 5,490 ft.; I.P. 14 B.P.H. through ¼-in. ck.

Humble O. & R. Co. No. 9-B P. H. Welder, A. Sisneros Sur. Loc.

Portilla Oil Co. No. 5-C P. H. Welder, A. Sisneros Sur. Drk.

Anahuac—Chambers County

Gulf Oil Corp. No. 1 Acom, sec. 45, H.& T.C. Sur. T.D. 7,142 ft.; tstd. mud and S.W. on D.S.T. 6,890-7,130 ft.; abd.

Gulf Oil Corp. No. 6 Knowles, sec. 48, H. &T.C. Sur. Drlg. sh. and L. 6,147 ft.

Gulf Oil Corp. No. 2 Pommer, sec. 40, H. &T.C. Sur. R.U.

Gulf Oil Corp. No. 2 Wilcox, H.&T.C. Sur., sec. 48. Drlg. sd. and gravel 2,867 ft.

Humble O. & R. Co. No. 10 Broussard-Hebert, sec. 59, H.&T.C. Sur. Drk.

Humble O. & R. Co. No. 11 Broussard-Hebert, sec. 59, H.&T.C. Sur. Loc.

Humble O. & R. Co. No. 9 Engels, J. A. Beckwith Sur. T.D. 7,075 ft.; top sd. 6,997 ft.; I.P. 25 B.P.H. through ¼-in. ck.

Humble O. & R. Co. No. 9 H. A. Grippon, H.&T.C. Sur., sec. 153. Drk.

Humble O. & R. Co. No. 6 Johnson, H.& T.C. Sur., sec. 47. 9⅝-in. csg. 1,273 ft.; T.D. 7,085 ft.; I.P. 26 B.P.H. through ¼-in. ck.

Humble O. & R. Co. No. 25 Middleton, sec. 58, H.&T.C. Sur. Drlg. sh. and bldrs. 1,258 ft.

Humble O. & R. Co. No. 8-B White, J. McGahey Sur. T.D. 7,129 ft.; 5½-in. csg. 7,122 ft.; I.P. 10 B.P.H. through ¼-in. ck.

Humble O. & R. Co. No. 9-B White, J. McGahey Sur. Drlg. 2,723 ft.

Humble O. & R. Co. No. 17 White, J. McGahey Sur. 9⅝-in. csg. 1,245 ft.; T.D. 7,020 ft.; making D.S.T.

Sun Oil Co. No. 2 White, J. McGahey Sur. R.U.

Cotton Lake—Chambers County

Glenn H. McCarthy No. 8 Kilgore, Townsend Sur. T.D. 4,165 ft.; fsg.

Kirby Pet. Co. No. 1 W. D. Haden, Chambers County School Land Sur. Loc.

Salt Dome Oil Co. No. 1-B Lawrence, S. Barrow Sur. R.U.

Seabreeze—Chambers County

Sun Oil Co. No. 1-A White, J. G. White Sur. No. 128; O.W.D.D. T.D. 9,055 ft.

Sun Oil Co. No. 1-B White, Wm. Mays Sur. Drk.

Turtle Bay—Chambers County

Stanolind O. & G. Co. No. 1 Iola Mae White, M. A. Carroll Sur. 10¾-in. csg. 1,136 ft.; drlg. sh. 6,304 ft.

Stanolind O. & G. Co. No. 4 State, due S of Sun Oil Co. No. 1 Chambers in Turtle Bay. Drlg. sh. 6,485 ft.

Big Creek—Fort Bend County

Gulf Oil Corp. No. 73 Davis, M. Young Sur. Drlg. sh. 397 ft.

Blue Ridge—Fort Bend County

Barnett Pet. Co. No. 1-B Blakely, Lot 7, Blk. E, Drew Sur. T.D. 3,876 ft. (cor.); sanded up; S.D.

Boling—Fort Bend County

Brewster Trustee No. 3 H. R. Farmer, J. Scott Sur. T.D. 4,284 ft.; rig up to pump.

Mack Hank Oil Co. No. 3-C Farmer, J. Scott Sur. T.D. 4,798 ft.; I.P. 430 B.P.D. through 15/64-in. ck.

H. K. Spear et al No. 1 Kasperek, Simon Miller Sur. T.D. 4,415 ft.; P.B. 3,740 ft.

Orchard—Fort Bend County

Gulf Oil Corp. No. 49 J. M. Moore, Germain Immg. No. 8. 13⅜-in. csg. 2,522 ft.; drlg. sh. and L. 2,938 ft.

Gulf Oil Co. No. 50 Moore Germain Immg. Drlg. sh. 1,780 ft.

Gulf Oil Corp. No. 51 Moore, Mark Smith Sur. Drlg. L. 372 ft.

High Island—Galveston County

Stanolind O. & G. Co. No. 1-B Cade, H. Denman Sur. Loc.

Stanolind O. & G. Co. No. 60-A Cade, M. Duncan Sur. T.D. 5,431 ft.; tstd. S.W. on D.S.T.

Stanolind O. & G. Co. No. 59-A M. Fitzsimmons Sur. T.D. 5,481 ft.; rng. 7-in. csg.

Dickinson—Galveston County

Coast Pet. Corp. No. 5 Maco Stewart, W. K. Wilson Sur. Drk.

Coast Pet. Corp. No. 6 Maco Stewart, W. K. Wilson Sur. Loc.

Diadem Oil Co. No. 1 Way, P. G. Merritt Sur. T.D. 8,099 ft.; 7-in. csg. 8,099 ft.

Humble O. & R. Co. No. 13-A Stewart, W. K. Wilson Sur. Top sd. 8,767 ft.; 7-in. csg. 8,770 ft.; T.D. 8,778 ft.; I.P. 27 B. P.H. through ¼-in. ck.

Humble O. & R. Co. No. 14-A Stewart, W. K. Wilson Sur. R.U.

Kenben Oil Co. No. 3 Stewart, W. K. Wilson Sur. T.D. 8,671 ft.; 7-in. csg. 8,670 ft.; I.P. 674 B.P.D. through ⅝-in. ck.

Sinclair Prairie Oil Co. No. 1 W. Weems, W. K. Wilson Sur. Loc.

Greens Lake—Galveston County

Sun Oil Co. No. 6 W. A. Hughes, Wm. Scott Sur. Drlg. wtr. sd. 3,349 ft.

Silsbee—Hardin County

Republic Prod. Co.-Houston Oil Co. No. 5 Brooks, Geo. Brooks Sur. T.D. 6,980 ft.; rng. csg.

Republic Prod. Co.-Houston Oil Co. No. 6 Brooks, J. N. Brooks Sur. Derrick.

Republic Prod. Co.-Houston Oil Co. No. 7 Brooks, G. W. Brooks Sur. R.U.

Republic Prod. Co.-Houston Oil Co. No. 1 Ellery, J. Ellery Sur. R.U.

Clinton—Harris County

Stanolind O. & G. Co. No. 1 D. A. Oates, C. Martinez Sur., Abst. 543. R.U.

Fairbanks—Harris County

Amerada-Stanolind O. & G. Co. No. 2-C Dopslauf, W. C. R.R. Sur., Blk. 1. T.D. 6,832 ft.; 7-in. csg. 6,831 ft.; I.P. 481 B. P.D.; ¼-in. ck.

Mykawa—Harris County

Flanagan Prod. Co. No. 2 Minnetex, W. J. Lovett Sur. R.U.; abd. loc.

West Prod. Co. No. 10 W. H. Irwin, W. B. Walker Sur. Drk.

Pierce Junction—Harris County

Rio Bravo Oil Co. No. 1 Hooks, J. Hamilton Sur. Drlg. L. 3,080 ft.

South Houston—Harris County

Stanolind O. & G. Co. No. 1 Green, H.T.& B. Sur. No. 6, Tr. 134. 9⅝-in. csg. 1,507 ft.; T.D. 4,775 ft.; 5½-in. csg. 4,699 ft.

Stanolind O. & G. Co. No. 2 Holder, H. T.&B. Sur., Tr. 145. T.D. 1,435 ft.; T.D. 4,000 ft.; I.P. 391 B.P.D. through ¼-in. ck.; T.P. 375 lbs.

Tomball—Harris County

Humble O. & R. Co. No. 5 H. S. Gebhard, W. Perkins Sur. Drk.

Humble O. & R. Co. No. 4 Hillegeist, J. House Sur. T.D. 5,591 ft.; 5½-in. csg. 5,590 ft.; swbg.

Humble O. & R. Co. No. 1 Hutchins, J. Pruitt Sur. Drlg. 951 ft.

Humble O. & R. Co. No. 3 C. H. Mueller, T. A. Duclose Sur. Drk.

Humble O. & R. Co. No. 1 W. L. Pickens, J. Pruitt Sur. Top sand 5,558 ft.; T.D. 5,659 ft.; 5½-in. csg. 5,562 ft.; I.P. 8 B.P.H. through ¼-in. ck.

Humble O. & R. Co. No. 15 J. D. Reid, C. Goodrich Sur. T.D. 5,547 ft.; 5½-in. csg. 5,542 ft.

Amelia—Jefferson County

Humble O. & R. Co. No. 2 R. J. Peveto, R. J. Peveto Sur. Drk.

Humble O. & R. Co. No. 1 Tyrell-Combest Realty Co., A. Savery Sur. 16-in. csg. 214 ft.; top sd. 6,758 ft.; 7-in. csg. 6,774 ft.; swbg.

Big Hill—Jefferson County

Stanolind O. & G. Co. No. 1 Fitzhugh, McFaddin Sur. 10¾-in. csg. 1,861 ft.; drlg. sh. and L. 4,075 ft.

Fannett—Jefferson County

Gulf Oil Corp. No. 1 Junker, W. A. Smith Sur. Drlg. sh. and L. 1,921 ft.

Nome—Jefferson County

Shell Pet. Corp. No. 3 Carpenter, M. Peveto Sur. Drlg. sh. 487 ft.

Shell Pet. Corp. No. 3 Paggi, M. Peveto Sur. T.D. 6,053 ft.; I.P. 166 B.P.D. through ¼-in. ck.

Shell Pet. Corp. No. 4 Paggi, J. W. Kirby Sur. Drk.

Sun Oil Co. No. 3 Long, J. Blair Sur. T.D. 5,939 ft.; W.O.

Sun Oil Co. No. 1 A. J. Mouboules, J. Blair Sur. Drk.

Cleveland—Liberty County

Gulf Oil Corp. No. 4-C R. D. McDonald, C. Smith Sur. R.U.

Hankamer—Liberty County

Gulf Oil Corp. No. 1 Bernice Hankamer. T.D. 4,331 ft.; S.D.

Hull—Liberty County

Eclipse Oil Co. No. 1 Barrow. T.D. 5,014 ft.; S.D.

Gulf Oil Corp. No. 22 Baldwin, J. Devore Sur. T.D. 4,260 ft.; rng. csg.

Gulf Oil Corp. No. 114 Phoenix, J. Devore Sur. T.D. 4,545 ft.; P.B. 2,900 ft.; I.P. 135 B.P.D. through ¼-in ck.

Esperson—Liberty County

General Crude Oil Co. No. 24 Moores Bluff. Drlg. sh. and L. 3,577 ft.

General Crude Oil Co. No. 26 Moores Bluff. R.U.

Bay City—Matagorda County

Hamman Expl. Co. No. 1 J. H. Crocker, E. Hall Sur. 13⅜-in. csg. 1,260 ft.; 9⅝-in. csg. cmtd. at 6,500 ft.; T.D. 9,575 ft.; 7-in. csg. 9,575 ft.; perf. csg. 9,405-13 ft.; tstd. 7,500 ft. S.W. on D. S.T.; made squeeze job; perf. csg. 9,528-31 ft.; tstd. S.W.; making cmt. squeeze jobs.

Hawkinsville—Matagorda County

Sun Oil Co. No. 2 Craig, T. Williams Sur Top salt 796 ft.; base salt 2,099 ft 18⅝-in. csg. 2,174 ft.; T.D. 3,349 ft.; rock; tstd. S.W. on D.S.T.

Markham—Matagorda County

Hamill and Hamill No. 6 Kountze, Henry

TEXAS

Week Ending January 23

GULF COAST FIELDS

Raccoon Bend—Austin County

Humble O. & R. Co. No. 11 McCasland, Wm. Smithers Sur. T.D. 3,480 ft.; T.A.

Humble O. & R. Co. No. 4-B Maclemell, Smithers Sur. T.D. 3,524 ft.; 7-in. csg. 3,424 ft.; R.U. to pmp.

Humble O. & R. Co. No. 10-B Hardy, J. E. Groce Sur. T.D. 4,214 ft.; swbg.

Hastings—Brazoria County

Humble O. & R. Co. No. 2-B Brown, Perry & Austin Sur., Lot 88. Drlg. sh. and L. 3,800 ft.

Humble O. & R. Co. No. 1-B Graham, B. B.B.&C. Sur., Lot 5. T.D. 6,054 ft.; 5½-in. csg. 5,995 ft.; I.P. 17 B.P.H.; ¼-in. ck.

Humble O. & R. Co. No. 1 Hoidale, Lot 16, B.B.B.&C. Sur. Drlg. sh. 4,191 ft.

Humble O. & R. Co. No. 1 King, H.T.&B. Sur. Drk.

Stanolind O. & G. Co. No. 5-B Brown, H. T.&B. Sur. No. 29. T.D. 6,080 ft.; flwd. 132 bbls. in 7 hrs. through ¼-in. ck.; T.P. 900 lbs.; C.P. 950 lbs.

Stanolind O. & G. Co. No. 4 C. A. Cannon, H.T.&B. Sur. T.D. 107 ft.; rng. csg.

Stanolind O. & G. Co. No. 8 Drake, H.T. &B. Sur. No. 36. Drk.

Stanolind O. & G. Co. No. 2 T. C. Edwards, Wm. Henry Sur. Loc.

Stanolind O. & G. Co. No. 7 Ford, A.C.H.& B. Sur. No. 1. T.D. 6,080 ft.; 7-in. csg. 5,797 ft.; flwd. 165 bbls. in 4¾ hrs. through 17/64-in. ck.

Stanolind O. & G. Co. No. 9 Ford, A.C. H.&B. Sur. No. 1. T.D. 1,682 ft.; 9⅝-in. csg. 1,665 ft.

Stanolind O. & G. Co. No. 10 Ford, A.C. H.&B. Sur. No. 1. Drk.

Stanolind O. & G. Co. No. 1 Legare, H.T. &B. Sur. No. 29. 10¾-in. csg. 1,690 ft.; drlg. sd. 5,586 ft.

Stanolind O. & G. Co. No. 1 Sheffield, H.T.&B. Sur. No. 29. T.D. 6,080 ft.; 7-in. csg. 5,795 ft.

Stanolind O. & G. Co. No. 3 Surface, B. B.B.&C. Sur. Drk.

Stanolind O. & G. Co. No. 1 Wagner, H. T.&B. Sur. No. 29. 10¾-in. csg. 1,695 ft.; drlg. sd. and sh. 6,003 ft.

Stanolind O. & G. Co. No. 8 Williams, A. C.H.&B. Sur. No. 1. Drk.

Windsor Oil Co. No. 1 Hirsch, B.B.B.& C. Sur. R.U.

Lockridge—Brazoria County

Gulf Oil Corp. No. 1 K. M. Gibson, J. W. Hall Sur. Top oil sd. 6,351 ft.; 9⅝-in. csg. 6,337 ft.; T.D. 6,366 ft.; rng. screen and lnr.

Gulf Oil Corp. No. 1 Fred Reiss, J. W. Hall Sur. Drlg. sh. 7,145 ft.

Shell Pet. Corp. No. 1 Prison Farm, J. W. Hall Sur. T.D. 6,365 ft.; 7-in. csg. 6,344 ft.; I.P. 25 B.P.H. through ¼-in. ck.; T.P. 240 lbs.; C.P. 100 lbs.

Manvel—Brazoria County

Bowles & Borsodi No. 4 Norvell Co., Inc., H.T.&B. Sur. No. 23. R.U. and S.D

Harrison and Abercrombie No. 2 Stratton; Drlg. sh. 5,212 ft.

E. A. Stone No. 1 Nichols, E. Little Sur. Drk.

Parker Sur. Drlg. sh. 2,837 ft.; no report.
Powers Prod. Co. No. 1-C Meyers, W. Hadden Sur. Drlg. sh. 2,150 ft.; no report.
Turman Oil Co. et al No. 1 Hudson, H. Parker Sur. Drk.

Van Vleck—Matagorda County

Skelly Oil Co. No. 2 W. P. Johnson, M. Cummins Sur. Drlg. 1,312 ft.
Skelly Oil Co. No. 2 Rugely, I.&G.N. Sur. No. 8. Drlg. 1,827 ft.
Skelly Oil Co. No. 1 First Natl. Bank I.&G.N. Sur. No. 7. Drlg. 1,697 ft.

Ace—Polk County

Peyton Bros. No. 2-B Kirby & West, G. S. Thomas Sur. R.U.

Segno—Polk County

S. J. Ryan No. 1 Wing Est., I.&G.N. Sur. No. 15. R.U.

Greta—Refugio County

Hewitt & Daugherty No. 38 Lambert, Swisher Sur. Drlg. 3,337 ft.
United Prod. Co. No. 34 Lambert, Swisher Sur. Drlg. 2,927 ft.
United Gas Co. No. 34 Lambert, Swisher Sur. T.D. 5,917 ft.; 7-in. csg. 5,915 ft.; I.P. 378 B.P.D. through ¼-in. ck.

Quintana-O'Connor—Refugio County

Illinois Pet. Corp. No. 1 Heard, Ximines Sur. Drlg. 4,612 ft.
Quintana Oil Co. No. 2 Bauer, Ximines Sur. Drlg. sh. 4,310 ft.

Keran—Victoria County

Gulf Oil Corp. No. 9 Keran, M. Delean Sr. T.D. 5,800 ft.; 7-in. csg. 5,475 ft.; comp.; no gauge.

Placedo—Victoria County

Barnsdall Oil Co.-American Liberty Oil Co. No. 7 J. M. Pickering et al, A. Murray Sur. Cg. sd. 4,776 ft.; no report.
Barnsdall Oil Co.-American Liberty Oil Co. No. 8 J. M. Pickering, A. Murray Sur. Drk.
Barnsdall Oil Co.-American Liberty Oil Co. No. 12 Pickering and Roos, S.A.&M.G. Sur. No. 5. T.D. 4,777 ft.; 7-in. csg. 4,765 ft.; comp.; no gauge.
Barnsdall Oil Co.-American Liberty Oil Co., Lot 4, S.A.&M.G. Sur. Loc.
Magnolia Pet. Co. No. 4 Sklar, S.A.&M.G. Sur. No. 7. R.U.
Ownby No. 4 Malek, S.A.&M.G. Sur. T.D. 4,770 ft.; 5½-in. csg. 4,762 ft.; swabbing.

Clay Creek—Washington County

Sun Oil Co. No. 1 H. Lauter, N. Clay Sur. 7-in. csg. 7,445 ft.; swbd. and flwd. bbls. oil in 10 hrs.; drlg. 8,120 ft.
Sun Oil Co. No. 7 Schlottman, J. F. Perry Sur. Loc.

Five Corners—Wharton County

Texas Co. No. 5-B Pierce, A. H. Pierce Sur. T.D. 5,554 ft.; 7-in. csg. 5,545 ft. I.P. 80 B.P.D.; ⅛-in. ck.; T.P. 600 lbs.; C.P. 800 lbs.

Louise—Wharton County

Pure Oil Co. No. 7 Kountze, Morris & Cummins Sur., sec. 19. Drlg. 670 ft.

Magnet—Wharton County

C. E. McDonald No. 1 Sweet, J. Smith & McKenzie Sur. T.D. 5,854 ft.; S.W. sd.; S.D.

Pickett Ridge—Wharton County

Texas Co. No. 4 Nilson, I.&G.N. Sur. No. 37. Drlg. sd. 4,690 ft.

Spanish Camp—Wharton County

Felmont Oil Corp. et al No. 1 Lyle Logue, D. Wade Sur. Drlg. sh. 5,094 ft.

Withers—Wharton County

Texas Co. No. 20-C Pierce, Caldwell Sur. Drlg. sh. and L. 3,857 ft.
Texas Co. No. 17-C Pierce, Wm. Pettus Sur. 7-in. csg. 5,551 ft.; P.B. 5,554 ft.; P.B. 5,499 ft.; W.O.C.
Texas Co. No. 19-C Pierce, Wm. Pettus Sur. T.D. 5,571 ft.; 7-in. csg. 5,563 ft.; W.O.C.
Texas Co. No. 22-C Pierce, Wm. Pettus Sur. Drk.

GULF COAST WILDCATS

Austin County

R. L. Hopkins No. 1 J. W. Recnecke, J. Stephenson Sur. R.U.
W. H. Mitchell et al No. 1 F. Fenner Fitzgibbons Sur. S.D. 3,910 ft.; prep. to drill ahead.

Brazoria County

Beatty, Bowles and Borsodi No. 1 Truesa Lot 4, Blk. 8, H.T.&B. Sur. 9⅝-in. csg. 6,430 ft.; drlg. sd. 9,946 ft.
C. R. Bunte No. 1 Fite, D. Talley Sur. 10¾-in. csg. 1,030 ft.; T.D. 7,013 ft.; rng. 5-in. csg.
Ohio Oil Co. No. 1 Hazel Roirt, D. McNeil Sur. No. 2. R.U.
Texas Co. No. 1 Robbins, J. W. Brougham Sur. 11¾-in. csg. 4,950 ft.; T.D. 6,813 ft.; cut drill pipe at 6,392 ft.; fsg.

Calhoun County

Matagorda Oil Co. No. 1 Brundet, Tr. 8 Matagorda Island. 13⅜-in. csg. at 1,830 ft.

Colorado County

Coyle-Concord & Sterling No. 1 Mary M. South, I.&G.N. Sur., sec. 41. T.D. 6,189 ft; 5½-in. csg. 6,187 ft.; P.B. 6,055 ft set whipstock at 5,330 ft.
Eden Oil Co. No. 1 Trulia Wells, M. Whitting and Osborne League. Drk.

Fayette County

McNeil Pet. Co. No. 1 Dybla, A. Thompson Sur. M.I.R.

Galveston County

Shell Pet. Corp. No. 1 Maco Stewart, Spillman Sur. 9⅝-in. csg. 7,767 ft.; T.D. 10,460 ft.; P.B. 3,526 ft.; perf. csg. 3,502-12 ft.; tstd. mud and S.W.; S.D.

Grimes County

Fred Harris No. 1 J. C. Chaney, W. Donoho Sur. 10¾-in. csg. 100 ft.; drlg. sh. 3,113 ft.; no report.

Hardin County

T. S. Deskin No. 1 Mary B. Collier, O. C. Nelson Sur. Loc.
E. J. Kimball No. 1 Keitle Lbr. Co. Loc.

Harris County

Farrel and Cox No. 1 Bender, N. W. Travis Sur. S.D. 700 ft.
George Lawrence et al No. 1 Zoppa & Farwell Sur. 10¾-in. csg. 605 ft.; T.D. 6,525 ft.; P.B. to test sd. 6,206-26 ft.
Stanolind O. & G. Co. No. 1 Warren Minerals, H.T.&B. Sur. No. 1. Drlg. sh. and L. 4,173 ft.
Texas Gulf Prod. Co. No. 1 Gillespie and Garnsey, Simon Contreras Sur. Loc.

Jefferson County

Humble O. & R. Co. No. 1 Jefferson Ld. Co., C. Hillibrant Sur. Drlg. sdy. sh. 6,508 ft.
Sun Oil Co. No. 2 Broussard & Hebert, T.&N.O. Sur. T.D. 8,217 ft.; 9⅝-in. csg. 8,190 ft.; flowed est. 5 bbls. of fluid per hr.; T.P. 3,100 lbs.; sanded up; pulled tbg. and lnr.; cleaning hole.

Lavaca County

Cole Pet. Co. No. 1 Reed-Nollkamper, A. Smothers Sur. S.D. 2,395 ft.
Welshire Union Oil Co. No. 1-A Pohl, F. Bass Sur. S.D. 2,395 ft.

Liberty County

Kenco Oil Corp. No. 1 E. B. Pickett, H. T.&B. Sur. No. 10. Spudded.

Matagorda County

Continental Oil Co. No. 2 Robbins, J. C. Franz Sur. T.D. 6,400 ft.; conditioning mud.
Glenn McCarthy No. 1 Foley, sec. 19, Susan Perkins Sur. 10¾-in. csg. 2,008 ft.
J. G. Mayo and Smith and McDannald No. 1 E. L. Calhoun, David Rawls Sur. Drlg. sh. 5,680 ft.
Strake Pet. Co. No. 1 G. T. Sargent, L. E. Parker Sur. 13⅜-in. csg. 1,607 ft. T.D. 6,750 ft.; 9⅝-in. csg. 6,750 ft.; drlg. sh. 6,952 ft.

Montgomery County

Chapman No. 1 Foster, D. Pevy House Sur. 10¾-in. csg. 42 ft.; S.D. 3,552 ft.

Polk County

Mayo et al No. 1 Catline Mayo, J. G. Loving Sur. Rig.

Refugio County

Paul Meadows No. 1 Temple Lbr. Co., G. W. Main Sur. Drk.

Trinity County

Daniel E. Boone No. 1 Tullis, Wm. Watson Sur. S.D. 1,354 ft.
Cortez Oil Co. No. 1 V. and R. Kennedy, J. M. Prado Sur. R.U.

Tyler County

Republic Prod. Co.-Houston Oil Co. No. 2 Hurd, N. Hurd. Sur. R.U.

Walker County

Garland, Hartman & Page No. 1 Carey Ld. & Dev. Co., D. M. McDonald Sur. R.U.
Roswell Oil Co. No. 1 J. Bosborn, J. Jordan Sur. S.D. 520 ft.

Waller County

Sumas Prod. Co. of Austin No. 1 J. J. Menker. 10¾-in. csg. 300 ft.
H. E. Williams No. 1 T. C. Giddings Est., David Mouser Sur. Loc.

Washington County

Smith & Schlinke No. 1 Woode, J. Clark Sur. Drlg. 830 ft.

Wharton County

Texas Co. No. 1 Kluck, Jos. Hyland Sur. Drk.

S. W. TEXAS WILDCATS

Aransas County

Barnsdall Oil Co. No. 1 Kate J. Edwards, 80 ft. W line, 330 ft. S line, Lot. 87, Lamar Townsite, Wm. Lewis Sur. Drlg. sh. 7,382 ft.

Atascosa County

Frontier Oil Co. No. 1 Oppenheimer, John Sharp Sur. S.D.; repairs, 2,260 ft.
Helvetia Oil Co. No. 2 S. Pratt, 333 ft. SE and SW lines tr., Garza Sur. 46. Top Serp. 3,085 ft.; T.D. 3,460 ft. P.B. 3,085 ft.; S.D.

Bandera County

A. T. Crane No. 1 Watson, Sur. 71. S.D. 2,035 ft.

Bee County

Benson & Jones No. 1 Ray, Anna Burk Sur. Stdg. 4,911 ft.
Two Rivers Oil Co. No. 1 Hartzendorf, Geo. A. Kern Sur. Spudded.

Blanco County

E. L. Nixon No. 1 Hornberger, 1,200 ft. S line, 300 ft. E line, Sur. 723. Drlg 447 ft.

Brooks County

California Co. No. 1 Jones, 19,800 ft. S line, 4,500 ft. W line, La Mestina Gr. Sd. 3,670-88 ft.; comp.; est. 200 B.P.D. fluid, 20 to 50% wash wtr. and mud; T.P. 150 lbs.; C.P. 550 lbs.
Texas Gulf Prod. Co. No. 1 Proctor, 330 ft. S and E lines, Blk. 2, sec. 20, Los Almos and Loma Blanca Surs. M.I.M.

Burleson County

M. R. Exploration Co. No. 3 Fountain, Wm. Raleigh Sur. M.I.M.

Duval County

Atlantic Ref. Co. No. 1 Hamilton, sec. 37. Loc.
Hiawatha Oil Co. No. 1 Southland Life Ins. Co., 330 ft. S and E lines, sec. 15, Agua Poquita Gr. D.S.T. 5,340-67 ft.; sec. 660 ft. of oil in 15 min.; W.P. 30 lbs.; rng csg.
Magnolia Pet. Co. No. 1 D.C.R.C., 330 ft. S and W lines, lse., sec. 902. Loc.
Oliver Oil Co. No. 1 Shaffer, Sur. 146. T.D. 970 ft.; S.D.

Edwards County

I.T.I.O. No. 1 Love & Evans, sec. 66, Blk. 3, G.W.T.&P. Ry. Sur. (Workover). Prep. deepen from O.T.D. 3,002 ft. to 6,250 ft.
Plateau Oil Co. No. 1 R. L. Hatch, sec. 66, J. W. May Sur. S.D. 4,750 ft.

Fayette County

McNeil Pet. Co. No. 1 Dybola, A. Thompson Lge. R.U.

Goliad County

Rual Singer No. 1 C Wood, Geo. Villa Sur. M.I.M.
Sun Oil Co. No. 2 Fromme, L. Fulton Sur. Drlg. 3,276 ft.

Gonzales County

M. S. Holliday No. 1 Edwards, W. W. Page Lge. T.D. 1,108 ft.; S.D.

Guadalupe County

Long & Ross No. 1 Feltz, Dunn Sur. T.D. 633 ft.; S.O.; S.D.

Hidalgo County

Dale Smith No. 1 Fairbanks & Young, Blk. 44, Porc. 46, jurisdiction of Reynosa. Drlg. 1,892 ft.
Sun Oil Co. No. 1-A Sweeny Est., Lot 1, Wayne Wood Subd. No. 2. T.D. 6,598 ft.; stdg.

Jim Hogg County

Gifford Oil Co. No. 1 Armstrong, Sur. 43. R.U.
S. Payne No. 1 Holbien, 150 ft. N and W lines, Blk. 10, Sh. 3, Animas Gr. R.U.

Jim Wells County

Gifford Oil Co. No. 1 Armstrong, Sur. 43. Loc.
Gist & Graddy No. 1 Owens, 660 ft. N line, midway E and W lines Sur. 151. Set 7-in. csg. 2,340 ft.; T.D. 5,308 ft.; D.&A.
G. Tzelmelis (Putnam & Stewart) No. 1 Canales, C Blk. 32, Mosser Subd. (reinstated). S.D. 5,036 ft.

Karnes County

De Graff & Reele No. 1 Cochran, 460 ft. E line, 160 ft. S line, McConnell Lge. S.D. 460 ft.

Kerr County

S. W. Forrest No. 1 J. W. Baily, 1,000 ft. N line, 330 ft. E line, Brendle Sur. S.D. 723 ft.

LaSalle County

W. H. Vernon No. 1 Las Abias ranch, 150 ft. N line, midway E and W lines, sec. 726. S.D. 800 ft.

Lee County

Pederson et al No. 1 Turner, David Hudson Sur. T.D. 6,560 ft.; milling 3,600 ft. to sdtrk.

Live Oak County

H. Coquat No. 1 L. Reagan, Santiago McGloin Sur. Drlg. 937 ft.
Hagen & Stewart No. 1 S. A. Joint Stock Ld. Bank, 800-ac. tr., John Turner Sur. Cg. 1,362 ft.
Loma Oil Co. No. 2 Cardwell, 95-ac. tr., Sparks Sur. Loc.
Loma Oil Co. No. 1 Reagan, 1,800 ft. N highway, 350 ft. E line, 1,182-ac. tr., Turner Sur. Cg. 1,422 ft.
V. G. Schimmell No. 1 Geo. West, C 150-ac. tr., J. Poitevent Sur. 231. Cg. 3,-137 ft.

McMullen County

Big Rock Oil Corp. No. 1 Martin, Uleiting Sur. No. 6. S.D. 40 ft.
E. M. Jones No. 1 Ezell, 160-ac. tr., sec. 3, Thos. Adams Sur. D.S.T. 1,179-91 ft. blew out and shut in; killed and abd.; T.D. 1,283 ft.
E. M. Jones No. 2 Ezell, 330 ft. W line, 990 ft. N line, 160-ac. tr., sec. 13, Fadden Sur. Sd. 1,276-87 ft.; tested S.W.; sd. 1,570-80 ft.; gas odor; test failed; washing.
Rowan & Hope No. 1 Edrington, N½ SE¼ Sur. 81. Sd. 1,765-75 ft.; S.G.
Rowan & Hope No. 1 Rhodes, NE¼ sec. 18, Scale & Morris Sur. M.I.M.

Medina County

F. Brown No. 1 Bilhartz, J. Campbell Sur. 24. Set sur. csg. 200 ft.; W.O.C.
A. Chmel No. 1 Odem, 160 ft. W line, 493 ft. N line tr., Castro Sur. 174. M.I.M.
R. P. Whitfield No. 1 Odem, Henry Castro Sur. 177. Cg. 697 ft.
W. H. Wycoff No. 1 Bendele, 1,275 ft. W line, 150 ft. N line, Joe Barnhart Sur. 593. Drlg. 316 ft.

Nueces County

Allen & Seaboard Oil Corp. No. 2 Chapman, 660 ft. S and W lines, sec. 38. M. I.M.
W. F. Morgan No. 1 Oliver Bird, 330 ft. S and W lines, 132-ac. tr., Oliver Sur. 162. Drlg. 5,134 ft.
Sloan & Green No. 1 Cassens, sec. 26, Longorio Sur. R.U.
Steve Paul No. 1 Smith, 1,650 ft. E line, 330 ft. S line, sec. 35, Flour Bluff Encinal Trs. Loc.
Baltic Drlg. Co. No. 1 Poenisch, Lot 2, Blk. 32, Flour Bluff Addn. (workover of former Hurlburt test). O.T.D. 6,250 ft.; R.U.; S.D.
Wellington Oil Co. No. 1 Stockton, 300 ft. S and W lines NE¼ sec. 25. T.D. 7,005 ft.; perf. 4,098-4,702 ft.; comp.; 12.8 B.P.H. P.L.O. on ⅝-in. ck.; C.P. 750 lbs.

Real County

Sun Oil Co. No. 1 Dietert, 1,980 ft. E line, 660 ft. S line, sec. 7, G.W.T.&P. Sur. Drlg. 3,721 ft.

San Patricio County

W. B. Craig No. 1 Drainage Ditch, N. Remon Sur. R.U.
W. B. Craig No. 1 Nelson, 471 ft. NE line, 466 ft. SE line, S¼, sec. 7, 1st Addn. Loc.
L. A. Douglas and J. O. Williams No. 1 Kokernot, 90-ac. tr., sec. 19. Drlg. 672 ft.
Eleanor Oil Co. No. 1 W. W. Toland, sec. 15, Blk. A, Coleman-Fulton Pasture Subd. Loc.
Golding & Fearis No. 1 Turner, 330 ft. S and E lines, Blk. 6, Masterson Subd. Drlg. 4,727 ft.
Windsor Oil Co. No. 1 Bissett, Tr. 1, Tivoli Subd., Crockett Sur. Loc.

Starr County

J. F. Anderson No. 1 Yzagierre, Tr. 1, Porc. 79, J. of Camargo. Drlg. 2,749 ft.
J. H. Brower No. 1 Saenz, Sur. 363. S.D. 150 ft.
F. Davenport No. 1 Kelsey-Bass, 534 ft. S line, N 585-ac. tr., 2,856 ft. E line, Porc. 87. Set 1,000 ft. of surf. csg.; no report.
Davenport-Slick-Urschel No. 1 Slick Est., Davenport ranch, sec. 485. Sd. 5,571-81 ft.; good odor oil and gas; fsg.
R. A. Mitchell No. 2 Bass, Sur. 8, Porc. 75-77. Drlg. sh. 4,827 ft.
Moss & Heard No. 1 Ricaby, 1,500 ft. N of Highway No. 4, Porc. 83. Oil sd. L. 308-20 ft.; P.B. 1,318 ft.; tstd. wtr., little oil; P.B. 1,316 ft.; W.O.C.
Sun Oil Co. No. 1 Orr, 330 ft. N and W lines, Porc. 103. Set csg. 94 ft.; T.D. 3,517 ft.; P.B. 2,679 ft.; tested S.W. at 2,130-40 ft.; S.D.

Webb County

O. W. Killam No. 1 fee, Sur. 1,690, Los. Lu-Tex Oil Co. No. 1-A Lone Star Const. Co., Blk. 26, Porc. 12, 13 and 14. Drlg. 1,521 ft.
Magnolia Pet. Co. No. 6 Garcia, Sur. 734. Sd. 2,019-25 ft., S.O.; sd. 2,025-38 ft., odor oil; set 7-in. csg. 2,021 ft.; T.D. 2,028 ft.; tstg.
Morgan Kirkwood No. 1 Frost Natl. Bank, Sur. 734. Drlg. 2,136 ft.
Paul Meaders No. 1 Garcia, Blk. 12, Sur. 1,101 ft.; drlg. 783 ft.
Smith & Storey No. 1 Oppenheimer, Sur. 34. Drlg. 533 ft.
Smith & Taggart No. 1 Jones, Sur. 674. Drlg. 2,547 ft.
Wilcox O. & G. Co. No. 1 Dunbar, Sur. 2,292, J. Galen Gr. R.U.
Wilcox O. & G. Co. No. 1 Puig, Serna Blanca Pasture, Galan Gr., Sur. 2,183. Drlg. 5,597 ft.

Willacy County

Ruez-Morton, Inc., No. 1 F. Armendiaz, C Lot 9, Sh. 4, San Juan de Carricitos Gr. M.I. rig.
Ruez-Morton, Inc., No. 1 Johnson-Stillman, Lot 14, Blk. 25, Sh. 44, San Juan de Carricitos Gr. Loc.
Shell Pet. Corp. No. 1 Yturria, Sh. 64, San Juan de Carricitos Grant (workover). T.D. 7,662 ft.; to drill deeper; R.U.

Zapata County

Allison et al No. 1 Bustamante, Sh. 14, Comitas Gr. Sd. 1,144-51 ft.; rng. csg.
Ivan Howard and R. F. Duggan No. 1 Cuellar Bros., Sur. 248. R.U.
Jennings No. 1 Martinez, Sur. 434. T.D. 150 ft.; S.D.
J. D. Long No. 1 Phelps, 200-ac. tr., Villa Gr. Oil sd. 1,593-97 ft.; set 5½-in. csg.; T.D. 1,608 ft.
Mills Bennett Prod. Co. No. 1 Flores, Porc. 87. Cor. sh. 2,297 ft.

Zavalla County

Wilcox O. & G. Co. No. 1 Gilliman, sec. 11. Drlg. 914 ft.

S. W. TEXAS PROVEN

McCampbell—Aransas-San Patricio Counties

Atlantic Ref. Co. No. 2-B McCampbell, Lot 8, Blk. 39. Drlg. 2,420 ft.
Atlantic Ref. Co. No. 2-C McCampbell, 330 ft. SE line, 1,650 ft. SW line, lse., Lot 9, Blk. 40. Drlg. 5,572 ft.
Buckingham Oil Co. No. 2-A McCampbell, sec. 42, McCampbell Subd. Sd. 6,534-44 ft.; set csg.; W.O.C.
Collins & Broughton No. 1 McCampbell, 330 ft. NE and NW lines, Blk. 10, McCampbell Subd. M.I.M.
J. Nelson No. 1 Riggs, 330 ft. NW line, 213 ft. SW line, 6.46-ac. tr., Tra. 12 and 13, Blk. 16. Loc.

Hilbig—Bastrop County

Joe E. Mills No. 1 Askew, 600 ft. NW line, 1,525 ft. SW line, 278.5-ac. tr., Wolfenberger Sur. T.D. 2,907 ft.; S.D.

Caesar—Bee County

Luling O. & G. Co. No. 3 Borroum, 450-ac. tr., Baker Sur. Gas sd. 3,079-83 ft.; comp. for gasser.

Cosden—Bee County

Elwood & Young No. 3 Barnett, John Flato

Sur. Sd. 3,636-53 ft.; S.O.; P.B. 3,960 ft.; T.D. 4,050 ft.; S.D.: W.O.O.

Plummer—Bee County

W. C. McBride No. 1 Plummer, 34-ac. tr., sec. 33, Plummer-Chessman Sur. Loc.

Ray—Bee County

J. A. West No. 1 Geo. Ray, Blanchard Sur. Drlg. 220 ft.

Gas Ridge—Bexar County

American Gas Co. No. 5 Oliver, 400-ac. tr., Rodriguez Sur. Sd. 3,285-3,309 ft., S.O.; drlg. 3,362 ft.

Alta Verde—Brooks County

L. & W. Oil Co. No. 1 Wm.Singer, Blk. 8, Sur. 436, Sd. 515-20 ft.; T.D. 562 ft.; S.D.

Branyon—Caldwell County

Adams & Lyles No. 3 Ellison, D. Cooper Sur. Cg. 2,047 ft.

R. B. Byrd No. 1 McGee, J. A. Neal Sur. M.I.M.

Mee, Ames & Mee No. 1 Lancaster, D. Cooper Sur. T.D. 2,210 ft.; comp.; no gauge.

Mee, Ames & Mee No. 2 Lancaster, D. Cooper Sur. M.I.M.

Taylor Pet. Co. No. 1 Caldwell County, 4-ac. tr., D. Cooper Sur. Drlg. 566 ft.

Colmena—Duval County

Conservative Oil Co. No. 2 D.C.R.C.-Sents 133 ft. N Eline, 1,200 ft. SE line, Blk. 13 sec. 51. S.D. 1,544 ft.

J. E. Thomas No. 1 D.C.R.C., 80-ac. tr., sec. 55. Loc.

Driscoll—Duval County

Continental Oil Co. No. 13-A Sevier, Sur 448, M.I.M.

El Mesquite—Duval County

Hamil & Smith No. 3 J. Benavides, Subd 2, El Mesquite Gr. T.D. 3,502 ft.; D.&A.

Rogers & Rogers No. 3 Pena, El Mesquite Gr. R.U.

Government Wells—Duval County

Ralph Ogden No. 10 B.C.C., N½, S½, Sur. 135. Tstg. 2,455 ft.

San Diego Oil Corp. No. 5 Bennett, 330 ft. N and E lines. SE¼, SW¼, Sur. 44. T.D. 2,405 ft.; completing.

Southwest Drlg. Co. No. 1 Hahl, Sur. 64. Set csg. on sd. 2,537 ft.; deepening 2,541 ft.

J. T. Stover No. 2 Hester, Sur. 47. Drlg. 2,116 ft.

Hoffman—Duval County

Bridwell Oil Co. No. 2 Hoffman, 80-ac. tr., Sur. 111. Drlg. 1,526 ft.

Bridwell & Gorman-Yoakam No. 3 Robles, sec. 68. Loc.

Bridwell & Gorman-Yoakam No. 4 Robles, sec. 68. R.U.

Bridwell Oil Co. No. 5-B Sutherland, Sur 112. Sd. 2,792-2,814 ft.; comp.; 107 B.P.D.

Plymouth Oil Co. No. 4 Hoffman, sec. 117. Loc.

Kohler—Duval County

Humble O. & R. Co. No. 54-A Kohler, 330 ft. N and E lines, sec. 164. Drlg. sh. 2,-634 ft.

Humble O. & R. Co. No. 3 Peters, sec. 398. Set csg. 2,653 ft.; W.O.C.

Sun Oil Co. No. 1 Peters, 330 ft. S and W lines, Sur. 161. Set csg. 2,646 ft.; W.O.C.

Windsor Oil Co. No. 5-B Peters, Sur. 34. Loc.

Labbe—Duval County

Magnolia Pet. Co. No. 2 Labbe ranch, 990 ft. S and W lines, sec. 1. Sd. 2,904-10 ft.; D.S.T. 290 ft. P.L.O. in 10 min.; set 7-in. csg. 2,910 ft.; W.O.C.

Loma Novia—Duval County

Duval Oil Corp. No. 28 Bishop, sec. 57. Drlg. 320 ft.

Eastern Texas Prod. Co. No. 5 Hubbard Sur. 71. R.U.

Humble O. & R. Co. No. 18-B Hubbard, Sur. 83. Set csg. 50 ft.; W.O.C.

Humble O. & R. Co. No. 23-B Hubbard, sec. 42. Drlg. sh. 2,442 ft.

Humble O. & R. Co. No. 32-B Hubbard. Sur. 72. Loc.

Humble O. & R. Co. No. 45-B Hubbard, Sur. 72. Drlg. 2,193 ft.

Humble O. & R. Co. No. 64-B Hubbard. E½, sec. 42. T.D. 2,783 ft.; R.U. to pump.

Humble O. & R. Co. No. 20 Ruiz, Sur. 553. T.D. 2,500 ft.; S.D. repairs.

Humble O. & R. Co. No. 21 Ruiz, Sur. 553. Drlg. sh. 1,308 ft.

Magnolia Pet. Co. No. 53 Hahl, Sur. 67. Sd. 2,740-54 ft.; comp.; 28 B.P.D.

Magnolia Pet. Co. No. 10 Herbst, Sur. 41. Drlg. 376 ft.

Roxana Oil Co. No. 4-A Hubbard, Sur. 71 M.I.M.

Stieren Oil Co. No. 1 Wright, Sur. 72. R.U.

Texas Co. No. 19 Bishop, Sur. 57. Drlg. sdy. sh. 2,985 ft.

Lopez—Webb—Duval Counties

Gem Oil Co. No. 2 Peal, Sur. 72. M.I.M.

Humble O. & R. Co. No. 1 D.C.R.C., Sur. 901. Loc.

Humble O. & R. Co. No. 4-C, D.C.R.C. Sur. 901. Drlg. 1,965 ft.

Humble O. & R. Co. No. 5-C D.C.R.C. Sur., sec. 901. Drlg. sd. 2,103 ft.

Magnolia Pet. Co. No. 1 D.C.R.C. Sur. 902. T.D. 2,400 ft.; fsg.

Magnolia Pet. Co. No. 30 Peal, Sur. 383. R.U.

Mortimer & Springer No. 15-B Peal, Sur. 794. T.D. 2,116 ft.; set csg.; comp.; 444 B.P.D. on ½-in. ck.; sd. 2,091-98 ft.

Texas Co. No. 16-A D.C.R.C. Sur., Lot 19, sec. 194. Set 10-in. csg. 86 ft.; W.O.C.

Peters—Duval County

Windsor Oil Co. No. 5-B Peters, Sur. 34. Loc.

Seven Sisters—Duval County

W. W. Blocker No. 3 Benton-Coopwood, Sur. 382. Spdd.

Humble O. & R. Co. No. 23 Badgley, Sur. 307. Drlg. sh. 1,850 ft.

Humble O. & R. Co. No. 2 Dowdy, Sur. 272. Set csg. 2,427 ft.; W.O.C.

Humble O. & R. Co. No. 3 Dowdy, sec. 272. Loc.

Humble O. & R. Co. No. 37 Smith, Sur. 382. T.D. 2,450 ft.; reworking.

Humble O. & R. Co. No. 41 Smith, Sur. 382. Testing 2,460 ft.

Humble O. & R. Co. No. 42 Smith, Sur. 382. Swbg. 2,471 ft.

Texas Co. No. 8 Badgley, Sur. 307. Drlg. 120 ft.

Wellington Oil Co. No. 23 Welder, Sur. 383. Comp.; 18 B.P.H.; T.D. 2,474 ft.

Wellington Oil Co. No. 26 Welder, Sur. 383. Loc.

Wellington Oil Co. No. 27 Wellington, Sur. 383. Comp.; 21 B.P.H.; T.D. 2,710 ft.

Wellington Oil Co. No. 29 Welder, Sur. 383. Comp.; 18.73 B.P.H. on ¼-in. ck.; sd. 2,462-74 ft.

Westheimer & Daube No. 28 Campos, Sur. 224. R.U.

Pearsall—Frio County

Amerada Pet. Corp. No. 8 Halff & Oppenheimer, S. A. Ditch Sur. 1,104. T.D. 6,230 ft.; set csg. 6,119 ft.; blew out making est. 10,000,000 ft. gas; closed in; flwd. 1,500,000 ft. gas and dist.; C.O. hole.

Amerada Pet. Corp. No. 7 Oppenheimer, 1,-320 ft. W line, 330 ft. S line, Gibson Sur. 16. (W.O.); swbg. in 5,573 ft.

North Pettus—Goliad-Karnes Counties

Bostex Oil Co. No. 5 Runge Loan Bank, 330 ft. SW & SE lines lease, Meyer Sur. Sd. 3,718-30 ft.; comp.

Diamond Halff Oil Co. No. 1-C Gillette, 745-ac. tr., J. Gomez Sur. Sd. 3,668-3,-876 ft.; completing.

Sun Oil Co. No. 7 Scarbrough, B.&B. Sur. Sd. 3,682-96 ft.; R.U. to pump.

Clark—Guadalupe County

J. E. Clark No. 1 Grimm, G. DeWitt Sur. Loc.

Diamond Halff Oil Co. No. 2 Larison, G. DeWitt Sur. Spudded.

Marts & Bevins No. 2 Grim, G. DeWitt Sur. 13. Drlg. plug. 2,426 ft.

Darst Creek—Guadalupe County

Freeman Oil Co. No. 1 Larison, G. DeWitt Sur. 13. T.D. 2,410 ft.; comp.; no gauge.

La Jita Corp. No. 1 Denmann, 50-ac. tr. Drlg.

V. G. Schimmel No. 2 Grimm, Dewitt Sur. T.D. 2,525 ft.; W.O. pump.

LaBlanca—Hidalgo County

Pantana Pet. Co. No. 1-B Engleman, Lot 8, sec. 249. Perf. 6,666-83 ft.; flw. gas and 75 B.P.D. dist.; dist. flow increasing.

Pantana Pet. Co. No. 1 MacDougall, Lot 232, sec. 249. T.D. 8,077 ft.; set csg. 8,-077 ft.; to perf.

Sterling O. & R. Co. No. 1 Engleman, 660 ft. N and E lines, Lot 8, Blk. 95. M.I.M.

Samfordyce—Hidalgo-Starr Counties

Ralph Fair No. 1 Flores, 30-ac. tr., Sh. 250, Porc. 38. Drlg. rocks 1,857 ft.

E. A. Graham No. 1 Yturria Ld. & Livestock Co., Tr. 9, Porc. 100. Cg. 2,872 ft.

Harrison & Danvers No. 4-A Guerra, 30.78-ac. tr., Tr. 251, Porc. 38, Sds. 2,800-08 ft. and 2,940-58 ft.; S.O.; set csg. 2,996 ft.; W.O.C.

Young & Bonnear No. 1 Diaz, Tr. 331, Porc. 40. M.I.M.

Alworth—Jim Hogg County

French Oil Co. No. 4 Garza, Blk. 1, Sur. 269. Drlg. 526 ft.

Colorado—Jim Hogg County

J. H. Meek, No. 3-A Martinez, 1,650 ft. E line, 1,550 ft. N line, Sur. 623. Drlg. 2,-983 ft.

Bentonville—Jim Wells County

Danciger Oil Co. No. 1 Bird, de la Garcia grant. M.I.M.

La Jita Corp. No. 3 Bowers, 990 ft. N and E lines, sec. 14. Tstg. 5,688 ft.

Stanolind O. & G. Co. No. 1 Bird, de la Garcia Gr. Drlg. 1,127 ft.

Stanolind O. & G. Co. No. 3 King, 990 ft. N, 330 ft. E. NE cor. sec. 20, in sec. 9. Drlg. 4,022 ft.

Stanolind O. & G. Co. No. 2 Pope, sec. 13, King Farm Lots. Loc.

Premont—Jim Wells County

Francis & Simonton No. 1 A. Lozana, Jr., 185 ft. E line, 165 ft. S line, Lot 111, sec. 36. S.D. 2,381 ft.

Tom Graham and Gilcrease Oil Co. No. 1 Escobar, 330 ft. N and E lines, Blk. 4, sec. 25. Buffalo-Tex Subd., Escobas ranch. Drlg. sh. 3,892 ft.

Tom Graham No. 1 Wm. Singer, C Lots 71 and 74, Sur. 76. T.D. 3,400 ft. P.B. 3,163-67 ft.; perf. 3,157-64 ft.

W. F. Morgan No. 1 Laughlin, C Lots 39 and 42, sec. 72, Sur. 231. Drlg. 1,127 ft.

Sandia—Jim Wells County

Geo. Smith No. 1 Wade, Lot 2, Wade ranch. Drlg. 4,327 ft.

J. E. Walsh No. 2 Wade, Lot 2, Blk. C, Bode Subd. Tstg. 2,910 ft.

Kingsville—Kleberg County

Great States Oil Co. No. 1 Kivlin, Blk. 4, sec. 39. Drlg. 2,127 ft.

Lucas—Live Oak County

Houston Oil Co. No. 37 Cartwright, 1,300 ft. W, 300 ft. S. No. 35, F. Botillo Sur. Drlg. sd. 4,319 ft.

Oakville—Live Oak County

Ohio Fuel Supply Co. No. 1 Goebel, 251-ac. tr., L. Romero Sur. Tstd. S.W. 2,-910 ft.; drlg. 3,026 ft.

Simmons O. & G. Co. No. 1 Reagan, Romero Sur. Drlg. 2,747 ft.

Calliham—McMullen County

W. P. Howard No. 6 Claunch, M. Hely Sur. Cg. 427 ft.

R. P. Lightfoot No. 9 Lark, Blk. 118, Scrugham Sur. Loc.

Loma Oil Co. No. 107-A Jacob, Sur. 514. Spudding in.

National Pet. Co. No. 2-B Lark, Jacob Sur. Drlg. 135 ft.

Travelers Oil Co. No. 4 Lark, Scrugham Sur. D.&A.

Rhodes—McMullen County

Humble O. & R. Co. No. 3 Edrington, SE¼ Sur. 59. T.D. 3,040 ft.; D.&A.

Ina—Medina County

Ina O. & R. Co. No. 3 Viola Wilson, Durst Sur. Drlg. 400 ft.

Aqua Dulce—Nueces County

Lockhart Bros. No. 1 Elliff, 4,501 ft. E line, 466 ft. S line, 3,054.9-ac. tr., Antonio Longorio Gr. Drlg. 5,217 ft.

Stoddart & Moss No. 1 Colman, 330 ft. NW and NE lines, SE¼ SW 330-ac. tr., sec. 206, S.D. 6,885 ft.; blew out and closed in; to attempt comp. through drill stem.

Texon Drlg. Co. No. 2 Elliff, 5,580 ft. S line, 466 ft. E line, 3,054.9-ac. tr., Antonio Longorio Gr. M.I.M.

Texon Drlg. Co. No. 2-B Sevier, 880-ac. tr., W. W. Chapman Lds., Palto Alto Gr. Set 16-in. csg. 300 ft.; drlg. 2,816 ft.

United Prod. Co. No. 1 Harvey, 1,100 ft. W line, 1,050 ft. N line, tr., M. Garza Sur. Drlg. 3,786 ft.

Clara Driscoll—Nueces County

Blanco Oil Co. and Buchanan No. 1 W. S. Gandy, 330 ft. S and W lines, E½ sec. 60. Drlg. 5,997 ft.

Hiram Reed No. 2 Roper, C Lot 1, sec. 108. Perf. 3,901-05 ft.; gas and wtr.; to P.B. and perf. in 3,800-ft. sd. W.O.W.

H. M. Reed No. 1 Holloway, 330 ft. S and E lines, 51.8-ac. tr., sec. 108. Perf. 3,-902-04 ft.; flw. brackish wtr.; S.D.

Wellington Oil Co. No. 1-A Sevier, 125-ac. tr., Wm. Gamble Sur. Set csg.; T.D. 6,075 ft.; perf. 5,348-54 ft.; making dist. and gas; C.P. 1,875 lbs.; T.P. 1,950 lbs.

Wellington Oil Co. No. 10 Sevier, 254-ac. tr., Wm. Gamble Sur. Spudded.

Flour Bluff—Nueces County

Humble O. & R. Co. et al No. 1 Cordes, C Lot 12, Blk. 48. Drlg. 6,653 ft.

Humble O. & R. Co. et al No. 4 Phillips, C Lot 1, Blk. 55. T.D. 6,650 ft.; sd. 6,634-50 ft.; comp.; 215 B.P.D. on ¼-in. ck.

Humble O. & R. Co. et al No. 5 Phillips, C Lot 6, Blk. 48. Set csg. 6,651 ft.; W.O.C.

Humble O. & R. Co. et al No. 8 Phillips, Lot 2, Blk. 55. Drlg. sh. 880 ft.

Humble O. & R. Co. et al No. 2 Robertson, Lot 24, Blk. 47. Set csg. 6,649 ft.; W.O.C.

Humble O. & R. Co. et al No. 1-A Thompson, Lot 3, Blk. 55. T.D. 6,647 ft.; rng. csg.

Humble O. & R. Co. et al No. 3 Webb, Lot 10, Blk. 47. Set csg. 1,040 ft.; W.O.C.

S. Paul No. 1 Moulter, Blk. 16, sec. 41, Encinal Garden tracts. Loc.

King—Nueces County

Stanolind Oil & Gas Co. No. 3 R. King, sec. 9, King Farm Subd. Spudded.

Saxet Heights—Nueces County

W. C. Brady No. 1 Guy, C Lot 45, Country Club Addn. M.I.M.

Callihan Bros. and Whitley No. 1 Hartley, Villareal Sur. R.U. and S.D.

Genro & Roosth No. 1 Caddell, C Lots 3, 4 and 5, Blk. "D," Harbor View Ests. Sd. 4,045-80 ft.; perf. 4,054-60 ft.; comp.

Long et al No. 1 Wallace, 200 ft. S. line, midway E and W lines tr., Villareal Sur. T.D. 4,085 ft.; perf. 4,063-67 ft.; T.D. 4,105 ft.

Chas. F. McGrew No. 3 Kelly, 19-ac. tr Sd. 4,060-90 ft.; set csg.; S.O. jetted S.W.; S.D.

W. N. Paul No. 2 Schallert, C Blk. "C," Harbor View Addn. S.D. 1,800 ft.; W.O.

Pedernal Oil Co. No. 1 John, Blk. 14, Oak Park Addn. S.D. 4,110 ft., orders

Port Oil & Gas Co. No. 3 Corpus Christi College, 500 ft. S No. 2, Villareal Sur. Drlg. 3,165 ft.

Port O. & G. Co. No. 10 Country Club, Lot 13, 26½-ac. tr., Rincon del Oso Sur. Sd. 4,064-88 ft.; comp.; 186 B.P.D. on 3/16-in. ck.

Renwar Oil Co. and Maryland Corp. No. 2 Golia, 19.3-ac. tr., Villareal Sur. Sd. 4,048-90 ft.; set csg.; perf. 4,078-83½ ft.; comp.

Sam Wilson No. 1 McCaughan, Blk. 2, Oak Park Addn. Sd. 4,073-80 ft.; set csg.; comp.; est. 300 B.P.D. on ¼-in. ck.

Sam Wilson, Jr., No. 2 McCaughan, Lots 1, 2 and 20, Blk. 9, Oak Park Addn. Set surf. csg.; W.O.C.

Saxet—Nueces County

C. Andrade No. 2 Rand Morgan, Sur. 592. Sd. 4,554-75 ft.; comp. 84 B.P.D., 3/16-in. ck.

Benson Drlg. Co. No. 1 Morgan, 330 ft. N and W lines, 40-ac. tr., Sur. 315 (W.O.). Old T.D. 4,483 ft.; R.U. to D.D.

Ben-Tex Oil Co. No. 2 Harmon, 990 ft. S line, 330 ft. E line, 50-ac. tr., Sur. 416. Fsg. 5,846 ft.

Bryant & Howell No. 1-A Kocurek, 330 ft. N line; 580 ft. E line 53-ac. tr., Sur. 25. T.D. 4,601 ft.; set csg. 4,423 ft.; perf. 3,850-62 ft.; swbg. oil; to test sd. 4,139-43 ft.

R. B. Bryant No. 8 Scoggins, 94-ac. tr., Sur. 315. Drlg. 3,826 ft.

W. W. Chapman No. 5 Morgan-Clark, Sur. 405. (W.O.); old T.D. 6,401 ft.; drlg. 6,624 ft.

Ben F. Smith No. 1 R. Kleberg, NE¼, sec. 409. Tstd. S.W. 4,118 ft.

Conservative Oil Co. No. 4-B Morgan, 330 ft. N line, 1,984 ft. W line, lse., Sur. 403. Fsg. 6,390 ft.

Crown Central Pet. Corp. (Wynne Drlg. Co.) No. 4-A Morgan, 80-ac. tr., 160-ac. tr., Surs. 592 and 315. Sd. 4,448-51 ft.; set csg. 4,446 ft.; comp.; 160 B.P.D. on 5/32-in. ck.

Crown Central Pet. Corp. No. 4-B Morgan, 80-ac. tr., Surs. 315 and 592. Set surf. csg.; W.O.C.

Crown Central Pet. Corp. No. 5-BB Morgan, 80-ac. tr., Surs. 315 and 592. Set surf. csg.; W.O.C.

L. Glasscock No. 1-B Johns, 20-ac. tr., McGregor Sur. Drk.

Great States Oil Co. and Violet Oil Corp. No. 7 McGregor-Belk, Sur. 311. D.S.T. 6,318-26 ft.; recd. 1,000 ft. oil, 90 ft. S.W.; sd. 6,208-26 ft.; set csg. 6,326 ft.; cleaning into pits.

Houston Oil Co. No. 17 Morgan, sec. 7, Rge. 5. R.U.

H. H. Howell No. 1 Hutchins, 330 ft. N and E lines, 80-ac. tr., Sur. 416. Drlg. 5,827 ft.

Hiawatha Oil Co. No. 4-A Smith, 98-ac. tr., Sur. 500. R.U.

W. B. Hinton No. 4 Cole, 330 ft. N and W lines, 60-ac. tr., Villareal Sur. Sd. 4,-867-76 ft.; T.D. 4,881 ft.; jetting.

W. B. Hinton No. 5 Cole, 330 ft. N line, midway between Nos. 3 and 4, 60-ac. tr., Villareal Sur. Loc.

Houston Oil Co. No. 12 McGregor, 135-ac. tr., Sur. 582. W.O. rig.

Houston Oil Co. No. 14 Morgan, 2,310 ft. S line, 330 ft. W line, 493-ac. tr. T.D. 4,865 ft.; prep. to pull screen and lnr.

Houston Oil Co. No. 16 Morgan, 492-ac. tr., sec. 7, Rge. 5, Sd. 4,546-51 ft.; flw. in pits.

Magnolia Pet. Co. No. 5 Walton, Page Lds. Sur. Drlg. 1,526 ft.

Maryland Corp. No. 1 Stillwell-Sagarin, 4.4-ac. tr., Sur. 500. Drlg. 1,212 ft.

T. P. Morgan & Associates No. 5 Morgan, NE¼, Sur. 405 (workover). R.U. to dpn.; drlg. 6,517 ft.

Oso Drillers, Inc., No. 4 Roark, 660 ft. E line, 1,200 ft. S line, 106-ac. tr., Villareal Gr. Cg. 5,837 ft.

Pan American Prod. Co. No. 8-A Morgan, 89-ac. tr., Sur. 403. Loc.

Pan American Prod. Co. No. 5-D Morgan, 330 ft. S and E lines, W½, SW¼, sec. 405. T.D. 5,825 ft.; set csg. 5,816 ft.; squeeze job.

Pan American Prod. Co. No. 3-B Sagarin, Sur. 500. Sd. 5,830-48 ft.; C.O.

Pan American Prod. Co. No. 4-B Sagarin, Sur. 500. R.U.

Pan American Prod. Co. No. 3-B Smith. Sd. 5,830-48 ft.; set csg. 5,848 ft.; W.O.C.

Pan American Prod. Co. No. 2 Solar Sevier, 140-ac. tr., Sur. 311. Tstd. S.W. 5,802-12 ft.; drlg. 5,821 ft.

Phillips Pet. Co. No. 5 Hutchins, 60-ac. tr., Blks. 29 and 30, Sheppard Farm Lots (W.O.). Cg. 6,349 ft.

Renwar Oil Co. and Andrade No. 8 McGregor Belk, 330 ft. N and E lines of lse., McGregor Sur. Sd. 4,831-43½ ft.; comp.; 107 B.P.D. on ¼-in. ck.; T.D. 4,844 ft.

Renwar & Maryland No. 6 Morgan, Sur. 315. Drlg. 2,053 ft.

Republic Nat. Gas Co. No. 1 P. W. Alexander, 32.35-ac. tr., sec. 9, Rge. 5. Cg. 6,626 ft.

Republic Nat. Gas Co. No. 3 A. Donigan, 240-ac. tr., secs. 6 and 7, Rge. 5. Set surf. csg. 1,050 ft.; W.O.C.

Republic Nat. Gas Co. No. 17 Dunn, Blk. 37, Sheppard Farm Lots. R.U.

Republic Nat. Gas Co. No. 3 Ordner, 100-ac. tr., sec. 403, Schaffer Farm Lots. Cg. 6,352 ft.

Richardson Pet. Co. No. 15 Cain & Secrist, Blk. 23, Russell Farm Lots. R.U.

Richardson Pet. Co. No. 2 Meredith, Blk. 40, Sheppard Farm Lots. Drlg. 1,726 ft.

Richardson Pet. Co. No. 5 Perkins-La-Gasse, Blk. 26, Sheppard Farm Lots. M.I.M.

Southern Minerals Corp. No. 7 Bliss, 120-ac. tr., Sur. 406. (W.O.); R.U. to D.D.; old T.D. 5,827 ft.

Southern Minerals Corp. No. 5 Mastin, Sur. 416. M.I.M.

Southern Minerals Corp. No. 10 Smith, Lot 5, Sheppard Farm Lots. Drlg. 4,-102 ft.

T. & T. Oil Co. No. 3 Cain & Secrist, Lot 23, Russell Farm Lots. Drlg. 2,619 ft.

Taylor Pet. Co. No. 1 Baldwin, 200-ac. tr., Blk. 21, Russel Farm Lots. Drlg. 6,273 ft.

Texon Drlg. Co. No. 1 Carter, 330 ft. N and E lines lse., Sur. 316. Sd. 4,438-42 ft.; T.D. 4,443 ft.; comp.; 150 B.P.D.

Texon Drlg. Co. No. 2 Carter et al, 200-ac. tr., Sur. 316. Cg. 4,396 ft.

W.A.R. Oil Co. No. 3 Hoelscher, Blk. 22, Russell Farm Lots. Sd. 4,455-59 ft.; comp.; 96 B.P.D.

W.A.R. Oil Co. No. 4 Hoelscher, Blk. 22, Sheppard Farm Lots. Drlg. 4,237 ft.

Stratton—Nueces County

Camp Prod. Co. No. 1 Wordner, 330 ft. E

line, 1,280 ft. N line, sec. 12, Stratton Subd. R.U. and S.D.

Plymouth—San Patricio County

Humble O. & R. Co. No. 5 Bevely, Blk. 1, sec. 35. Drlg. 5,647 ft.

Magnolia Pet. Co. No. 11 Corpus Christi Bank, sec. 24, Fourth Addn., Taft Lds Drk.

Plymouth Oil Co. No. 65-C Welder, sec. 71. Tstg. 6,575 ft.

Plymouth Oil Co. No. 66-C Welder, sec. 71. T.D. 5,619 ft.; sd. 5,599-5,619 ft.; comp.; 187 B.P.D. on 5/37-in. ck.

Plymouth Oil Co. No. 67-C Welder, sec. 48. R.U.

Sun Oil Co. No. 4 Rosson, sec. 35, Fourth Addn. Set surf. csg.; W.O.C.

Taft Field—San Patricio County

Atlantic Ref. Co. No. 3 Pullin, 330 ft. N line, 380 ft. W line, 40-ac. tr., Lot 4 sec. 1, Second Addn. R.U.

Cage Prod. Co. No. 5 Mayo, 330 ft. S and W lines lse., J. Fessenden Sur. Cg. 4,847 ft.

Cage Prod. Co. No. 7 Mayo, 9,560 ft. W line, 990 ft. S line, 60-ac. tr., Ottman Sur. Loc.

Conroe Drlg. Co. No. 6 Pullin, Lot 4, sec. 1. Drlg. 4,827 ft.

Eaves Oil Co. No. 4 Britton, Lot 8, sec. 6, Third Addn. Set csg. 4,008 ft.; W.O.C.

Humble O. & R. Co. No. 13 Mayo, 799 ft. S line, 330 ft. E line, 320-ac. tr., Ottman Sur. Set csg. 4,930 ft.; comp.; 200 B.P.D. on 3/16-in. ck.

Humble O. & R. Co. No. 15 Mayo, 320-ac. tr., Ottman Sur. Drlg. sh. 4,915 ft.

Humble O. & R. Co. No. 16 Mayo, 320-ac. tr., Ottman Sur. R.U.

Los Olmos—Starr County

Ted Stone No. 1 Kelsey-Bass, Porc. 87, J of Camargo. Sd. 400-08 ft.; tstg.

Cole—Webb County

Cole Pet. Co. No. 1 Cuellar. Drlg. S.W. sd. 2,442 ft.

O'Hern—Webb County

Hamil & Smith No. 18 Benavides, Blk. 438, Hale Subd. Loc.

Hamil & Smith No. 19 Benavides, Hale Subd. Drlg. 2,217 ft.

Hamil & Smith No. 28 Benavides, O'Herr Subd. Tstg. sd. 2,924-36 ft.

Hamil & Smith No. 36 Benavides, Hale Subd. Drlg. 426 ft.

Hamil & Smith No. 37 Benavides, O'Herr Subd. Drlg. 2,521 ft.

O. W. Killam No. 2 Bruni, Sur. 585. Drlg. 2,816 ft.

Hamil & Smith No. 41 Benavides, Hale Subd. Set csg. 2,934 ft.; W.O.C.

H. M. Reed No. 4 Benavides, Blk. 399 Hale Subd. Swbg. 2,916 ft.

Starr Dev. Co. No. 1 Benavides, 330 ft. N and W lines, Sur. 173. M.I.M.

Sun Oil Co. No. 2-A Benavides, Blk. 439, Hale Subd. Set csg. 2,932 ft.; W.O.C.

Texas Co. No. 2-A Benavides, Blk. 371, Hale Subd. T.D. 2,915 ft.; set csg. 2,902 ft.; comp.; 456 B.P.D. on ½-in. ck.; T.D. 2,918 ft.

Texas Co. No. 3-A Benavides, Lot 372, Hale Subd. Drlg. sd. and gravel 300 ft.

Charco Redondo—Zapata County

W. C. Bob No. 2 Martinez, 8¼, Blk. 23 Qandudo Grant. M.I.M.

Escobas—Zapata County

H. H. Coffield No. 1 Bustamente, Sh. 34, Fansler Part. Comp.; 10 B.P.D.; T.D. 1,391 ft.

Daubert & Lipscomb No. 3 Santos, Share 6, Fansler Part. Drlg. 1,126 ft.

B. W. Roscoe No. 6 Bustamente, 197.3-ac. tr., Sh. 33. Loc.

B. W. Roscoe No. 7 Garza, Share 33, Fansler Part. Drlg. 736 ft.

Texas Co. No. 95 Jennings, Cerrito Blanco Gr. Drlg. sh. 2,125 ft.

Haynes—Zapata County

J. D. Long No. 1 Phelps, Villa Gr. R.U.

Magnolia Pet. Co. No. 5 Haynes, Blk. 7, Haynes Subd. T.D. 1,482 ft.; S.D.

Magnolia Pet. Co. No. 9 Haynes, Blk. 7, T.D. 1,159 ft.; comp.; 10 B.P.D.

Magnolia Pet. Co. No. 12 Haynes, Blk. 7, Haynes Subd. Comp.; 60 B.P.D.; T.D. 1,105 ft.

Magnolia Pet. Co. No. 14 Haynes, Blk. 7, Haynes Subd. Drlg. 377 ft.

Magnolia Pet. Co. No. 16 Haynes, Blk. 7, Haynes Subd. Set csg. 1,127 ft.; W.O.C.

United Prod. Co. No. 16 Haynes, Blk. 13, Gunby Subd. T.D. 1,046 ft.; W.O.P.E.

United Prod. Co. No. 17 Haynes, Blk. 13, Gunby Subd. Set csg. on sd. 1,001 ft.; W.O.C.

United Prod. Co. No. 18 Haynes, Blk. 13, Gunby Subd. Drlg. 856 ft.

United Prod. Co. No. 19 Haynes, Blk. 13 W.O.P.E. 1,054 ft.

E. C. TEXAS WILDCATS

Anderson County

American Liberty Oil Co. No. 1 G. E. Gauge, Blackfoot area, B. Gilbert Sur. R.U.

Tide Water Oil Co. et al No. 7 Monnig, 1,866 ft. N of No. 2, S. Sanchez Sur., deep test, Long Lake field. Drlg. 2,312 ft.

Angelina County

Hicks et al No. 1 Morris, J. Morris Sur., 3 mi. E of Diboll. S.D. 2,165 ft.

W. A. Stone et al No. 1 Southern Pine Lbr. Co., B. J. Thompson Sur., 8 mi. SE Lufkin. S.D. 450 ft.

Summeral-Harris et al No. 1 M. L. Condrea, D. D. Maroney Sur., ¾ mi. W of Huntington. S.D. 1,472 ft.

Cherokee County

A. F. Richardson No. 1 F. P. O'Brien, G. S. Clapp Sur., 3 mi. NW of Rusk; 5,000-ft. test. Loc.

Dallas County

Mauldin Oil Co. No. 1 W. E. Howell, S. Layton Sur., 8 mi. E of Grapevine, 6 mi. W of Longmire. R.U.

Falls County

A. H. Bell et al No. 1 C. L. Trice, F. Mayham Sur., 1 mi. E of Lott. S.D. 876 ft.

R. M. Hefflin, No. 1 T. E. Battle, Mari Sur., 3 mi. SW of Marlin. S.D. 2,082 ft.

Thirteen Oil Co. No. 1 H. R. Roberts, N. Slatter Sur., 6 mi. SE of Lott, Pecan Gap. 1,480 ft. Drlg. 2,175 ft.

Fannin County

Joiner & Owens No. 1 Goss-Morgan, J. Stephens Sur., 16 mi. N of Honey Grove. Drlg. 2,721 ft.

Styles & Smith No. 1 R. Stewman, J. W. Clark Sur., 2 mi. SE of Trenton. S.D. 588 ft.; elev. 724 ft.

Freestone County

Everett Drlg. Co. No. 1 O. W. Killian, E. J. Robins Sur., 6½ mi. SE of Fairfield. S.D. 4,400 ft.

Yancey et al No. 1 Scott, Church Lot, H. Awalt Sur., W of Stewartsville. S.D. 3,870 ft.

Hunt County

Penn Oil Corp. No. 1 R. B. Parish, C 100-ac. tr., N. Dauley Sur., 7 mi. NE of Lone Oak. Drlg.

Superior Oil Co. No. 1 P. D. Paul, Mary Latham Sur., 4½ mi. NE of Quinlan. Drlg. 2,900 ft.

Texola Land Corp. No 1. J. M. Goin, Jas. Merrick Sur., 2 mi. SW of Wolfe City. S.D. 40 ft.

Kaufman County

Scott & Woodside No. 1 W. and T. Nash, in J. Cortez Sur., 1 mi. E of Scurry. Loc.

Lamar County

Lowery-Cutler No. 1 E. C. Porter, Thos. King Sur. Top Georgetown 354 ft.; S.D. 2,500 ft.

Limestone County

A. W. Phillips et al No. 1 E. M. Speight, M. Herrin Sur., 6½ mi. SE of Mexia. Fsg. 3,680 ft.

Rains County

Humble and Tide Water Oil Co. No. 1 Easter, R. Hotchiss Sur., 5 mi. NW Alba. S.D. 7,700 ft.

Red River County

Carpenter Oil Corp. No. 1 J. M. Roberts, 330 ft. N line of J. Ware Sur., 400 ft. SE of Cleary No. 1 Mowery dry hole, 10 mi. NE of Clarksville. M.I.R.

Roy L. Carter Drlg. Co. No. 1 J. A. Tutt, C 40-ac. tr. in D. Hart Sur., 2 mi. S of Avery. S.D. 80 ft.

M. Petroff et al No. 1 R. G. Morris, J. Guest Sur., 2 mi. W of Detroit. S.D. 20 ft.

Robertson County

J. E. Mills No. 1 T. Congelosi, C of 75-ac. tr. in G. A. Nixon Sur., 3½ mi. SW of Hearne. S.D. 2,250 ft.

Van Zandt County

Stroud & Lowe No. 1 P. L. McNeill, 600 ft. S and 150 ft. W of 104-ac., J. W. Guest Sur., 4 mi. N of Ben Wheeler. S.D. 110 ft.

Wood County

G. W. Nix et al No. 1 E. A. Russell, J. Delap Sur., SW cor. of county. S.D. 600 ft.

EAST TEXAS

(Border Counties)

Cass County

W. D. Ambrose No. 1 W. D. Chew, Robt. Trammel Sur., Chew tr. Drlg. 4,900 ft.

W. D. Ambrose No. 2 W. D. Chew, Robt. Trammel Sur., Chew tr. Drlg. 4,750 ft.

American Lib. No. 6-A Baugus, J. H. Rives Sur., Lot 9. Drlg. 4,765 ft.

American Liberty No. 4 J. Wiley, C E and W. line, 56-ac. tr., J. Davenport Sur. Loc.

American Liberty No. 5 J. Wiley, SW cor lse., J. Davenport Sur. Cmtd. 7-in. at 5,978 ft.; T.D. 5,987 ft.; W.O.C.S.

Frank DeMayo No. 1 W. D. Chew, Robt. Trammel Sur. R.U.

Gulf Prod. Co. No. 3 Dawson, J. H. Rives Sur. Drlg. 4,489 ft.

H. L. Hunt No. 1 I.N.&C.L. Shelton, SE cor. 202-ac. tr., J. Davenport Sur. Comp. pump. 100 B.P.D.; T.D. 6,050 ft.

Magnolia Pet. Co. No. 1 Allday Est., P. Evans Sur., SE cor. 87-ac. tr. Cmtd. 7-in. 6,025 ft.; T.D. 6,035 ft.; W.O.C.S.

Magnolia Pet. Co. No. 2 Allday Est., P. Evans Sur. Drlg. 5,248 ft.

Magnolia Pet. Co. No. 5 L. Haywood, P. Evans Sur., 625 ft. NE of No. 4. Cmtd. 7-in. 6,025 ft.; T.D. 6,035 ft.; W.O.C.S.

Magnolia Pet. Co. No. 6 L. Haywood, P. Evans Sur., 508 ft. NW of No. 1. Cmtd. 7-in. 6,007 ft.; T.D. 6,022 ft.; W.O.C.S.

Magnolia Pet. Co. No. 7 L. Haywood, P. Evans Sur., SW of No. 3. Loc.

Magnolia Pet. Co. No. 8 L. Haywood, P. Evans Sur., NE of No. 2. Loc.

Magnolia Pet. Co. No. 1 Lewis & Wicks, A. Archer Sur., SE cor. 20-ac. tr. Cmtd. 7-in. 6,070 ft.; T.D. 6,102 ft.; W.O.C.S.

Magnolia Pet. Co. No. 2 Lewis and Wicks No. 2, Cass Cty. Sch. Ld. Sur., NW cor. tr. Loc.

Magnolia Pet. Co. No. 3 Lewis and Wicks, Cass Cty. Sch. Ld. Sur., East of No. 2. Loc.

Magnolia Pet. Co. No. 4 Lewis and Wicks, Cass Cty. Sch. Ld. Sur. Loc.

Magnolia Pet. Co. No. 5 Lewis and Wicks, Cass Cty. Sch. Ld. Sur., east of No. 4. Loc.

Magnolia Pet. Co. No. 6 Lewis and Wicks, Alex Archer Sur. Loc.

Magnolia Pet. Co. No. 7 Lewis and Wicks, Alex Archer Sur. Loc.

Magnolia Pet. Co. No. 1 J. B. McLeod, Cass Co. Sch. Ld. Sur., NW cor. sur. Loc.

Magnolia Pet. Co. No. 8 Meda Green, J. Davenport Sur. Loc.

Magnolia Pet. Co. No. 13 Meda Green, J. Davenport Sur. Loc.

Magnolia Pet. Co. No. 4 Noel Est., W. B. Hughes Sur. Drlg. 4,642 ft.

Magnolia Pet. Co. No. 5 Rives, SE cor. John Collum Sur. P.B. 5,968 ft.; arg. test.

Magnolia Pet. Co. No. 1 H. F. Walker, Wilson Robinson Sur., SE cor. 102-ac. lse. Comp.; flowed 627 B.P.D.; T.D. 6,070 ft.

Magnolia Pet. Co. No. 3 H. F. Walker, Wilson Robinson Sur., NW cor. 102-ac. lse. Cmtd. 7-in. 6,050 ft.; T.D. 6,060 ft.; W.O.C.S.

Magnolia Pet. Co. No. 4 H. F. Walker, Wilson Robinson Sur., NE cor. 102 ac. lse. Cmtd. 7-in. 5,995 ft.; T.D. 6,010 ft.; W.O.C.S.

Magnolia Pet. Co. No. 5 H. F. Walker, Wilson Robinson Sur., SW cor. 102-ac. lse. Cmtd. 7-in. 5,995 ft.; T.D. 6,009 ft.; W.O.C.S.

R. W. Norton No. 1 Davis, H. Holbert Sur. Loc.

R. W. Norton No. 3 Davis, H. Holbert Sur., NE cor. Loc.

R. W. Norton No. 4 J. T. Moore, Wm. R. Myers Sur. Comp.; flowed 495 B.P.D.; T.D. 5,995 ft.

Ohio Oil Co. No. 5 R. P. Willis, S.F.I.W. Sur. No. 1,263. Cmtd. 7-in. 5,993 ft.; T.D. 6,008 ft.

Ohio Oil Co. No. 8 Willis, S.F.I.W. No. 1,263 Sur. Drlg. 2,010 ft.

Ohio Oil Co. No. 12 R. P. Willis, SE cor. 320-ac. tr., S.F.I.W. Sur. No. 1,263. Gas well; stg.; T.D. 5,924 ft.

Ohio Oil Co. No. 13 R. P. Willis, S.F.I.W. Sur. No. 1,263. Loc.

Ohio Oil Co. No. 14 R. P. Willis, S.F.I.W. Sur. No. 1,263. Drlg. 2,900 ft.

Ohio Oil Co. No. 18 R. P. Willis, S.F.I.W. Sur. No. 1,263, 1,750 ft. W of No. 12. Drlg. 4,200 ft.

Phillips Pet. Co. No. 1 Chew, SE cor. 207-ac. lse., Robt. Trammel Sur. Cmtd. 7-in. 6,150 ft.; T.D. 6,169 ft.; W.O.C.S.

Phillips Pet Co. No. 2 Chew, 1,460 ft. N. 326 ft. W. SE cor. W. D. Chew 207-ac lse., Robt. Trammel Sur. Comp.; flowed 300 B.P.D.; T.D. 6,119 ft.

Phillips Pet. Co. No. 5 Farrier, Wm. R. Myers Sur. Drlg. 3,820 ft.

Phillips Pet. Co. No. 6 Farrier, Wm. R. Myers Sur. Drlg. 5,225 ft.

Phillips Pet. Co. No. 7 Farrier, Wm. R. Myers Sur. Drlg. 530 ft.

Phillips Pet. No. 8 Farrier, Wm. R. Myers Sur. Loc.

Phillips No. 3 Farrier, Wm. R. Myers Sur., Sur., 220-ac. lse. Cg. 5,935 ft.

Phillips No. 4 Farrier, Wm. R. Meyers Sur., 933 ft. W of No. 2. T.D. 6,135 ft.; tstg.

Phillips Pet. Co. No. 1 Skinner, Hutchinson tr., S.F.I.W. Sur. No. 1,025. Drlg. 5,871 ft.

Spray Oil Co. No. 2 Scott Adams, 25-ac tr., Robt. Trammel Sur. Comp.; flowed 25 B.P.H.; T.D. 5,990 ft.

Spray Oil Co. No. 3 Scott, Robt. Trammel Sur. Loc.

Spray Oil Co. No. 4 Scott, Robt. Trammel Sur., west of No. 1. Loc.

Texas Co. No. 3 W. M. Hall, Alex Archer Sur. Drlg. 5,940 ft.

Texas Co. No. 4 W. M. Hall, Alex Archer Sur. Comp.; flowed 54 B.P.H.; T.D. 6,044 ft.

Texas Co. No. 5 W. M. Hall, A. Archer Sur. Loc.

Texas Co. No. 6 W. M. Hall, A. Archer Sur. Loc.

Texas Co. No. 1 D. Lewis, A. Archer Sur. Cg. 4,523 ft.

Texas Co. No. 3 J. B. McLeod, W. A. Elliott Sur. Cmtd. 7-in. 6,067 ft.; T.D. 6,078 ft.; W.O.C.S.

Texas Co. No. 6 N. A. Rambo, Cass County Sch. Ld. Sur. Drlg. 405 ft.

Texas Co. No. 8 N. A. Rambo, Cass County Sch. Ld. Sur. Drlg. 3,300 ft.

United Prod. Co. No. 1 G. W. Bibby Unit, A. Archer Sur. Drlg. 3,300 ft.

United Prod. Co. No. 2 Bivens Unit, Jas Davenport Sur. T.D. 6,021 ft.; tstg.

United Prod. Co. No. 3 J. A. Bewley, H. Holbert Sur. S.D. 2,285 ft.

United Prod. No. 4 J. A. Bewley, H. Holbert. Sur. Drlg. 4,525 ft.

United Prod. No. 5 J. A. Bewley, H. Holbert Sur. Drlg. 2,826 ft.

United Prod. No. 1-A J. H. Bewley, H. Holbert Sur. Drlg. 4,438 ft.

United Prod. No. 2-A J. H. Bewley, H. Holbert Sur. Drlg. 2,980 ft.

United Prod. No. 5 G. W. Bibby Unit. Drlg. 4,775 ft.

United Prod. No. 9 Rambo Unit, J. Davenport Sur., 545 ft. S, 400 ft. E of most northerly NW cor. Rambo Unit. Cg. 5,991 ft.

United Prod. Co. No. 10 Rambo, J. Davenport Sur. Drlg. 5,208 ft.

United Prod. Co. No. 10 J. T. Stewart Unit, John Collom Sur., 48-ac. tr. Comp., flowed 15 B.P.H.; T.D. 6,045 ft.

United Prod. Co. No. 3 Tyson Unit, J. H. Rives Sur. Comp.; flowed 21,000,000 ft.; T.D. 6,158 ft.

United Prod. Co. No. 5-A Tyson, J. H. Rives Sur. Drlg. 3,990 ft.

United Prod. Co. No. 6-A Tyson, J. H. Rives Sur. Drlg. 4,717 ft.

United Prod. No. 1 S. B. Willis, Wilson Robinson Sur. Loc.

United Prod. No. 2 S. B. Willis, Wilson Robinson Sur. No. 908. Drlg. 2,126 ft.

United Prod. No. 3 S. B. Willis, Wilson Robinson Sur. No. 908. Drlg. 356 ft.

Vaughn Prod. Co. No. 2 Willis, S.F.I.W. Sur. No. 1,263. Drlg. 2,015 ft.

Harrison County

Geyer Oil Co. No. 1 Alex Moore, 5 mi. SW of Waskom, C. W. Fields Sur. Drlg. 2,314 ft.

H. H. Roberts et al No. 1 Z. Douglas, J. Fields Sur. T.D. 2,485 ft.; W.O.C.S.

Marion County

Arkansas-La. No. 1 W. S. Ford, Charles Grayson Sur., NE cor. Ford 204-ac. tr. Drlg. 5,144 ft.

Tom Bell et al No. 1 David Lane, SW cor. Log 2, Jones Sur. T.D. 72 ft.; S.D.

F. R. Freet et al No. 1 Barnham, Robt. Potts Sur. Drk.

Sam Lanier No. 1 Lucey Rives, SE cor. M. G. Wall Sur. T.D. 960 ft.; W.O.S.R.

Morefield & Prince No. 1 Benefield, NE cor. Robt. Potter Sur., 4 mi. W of Gilmer City, La. T.D. 180 ft.; S.D.

Holcomb & Thomason No. 1 Lizzie Henderson, 330 ft. S and E. cor. Blk. 19 of Lizzie Henderson Subd., or 2,800 ft. N 3,450 ft. E of NW cor. of R. Benavidez Sur. Recmtd. 9⅝-in. csg.; core ahead; cg. blk. shale 6,265 ft.

Panola County

Logansport P. L. Corp. No. 1 Rushing, M. Smith Sur. T.D. 2,774 ft.; S.D.

Matex Oil Co. No. 1 Thomas M. Alstons, 3 mi. E of Elysian field. T.D. 5,836 ft.; W.O.

Shelby County

Mulroy-Curtain et al No. 1 Hayden, D. G. Yardt Sur. T.D. 3,182 ft.; D.&A.

Potter & Rubelling O. H. Polly No. 1, Wm. Wisner Sur. T.D. 4,070 ft.; S.D.

Wm. Redditt No. 1 Pickering Lbr. Co., SE cor. Stephens English Sur. Spudding.

Red Wing Oil Co. No. 1 C. H. Herton, 16-ac. tr. in J. Dowlin Sur. S.D. 1,800 ft.

H. A. Stebbinger No. 1 Pickering Lbr. Co. on 160-ac. tr. in A. Hanson Sur. Drlg. 2,045 ft.

NORTH TEXAS WILDCATS

Archer County

L. T. Burns No. 1 G. A. Lauster A, H.&T.C. R.R. Sur. No. A-799. Drlg. 990 ft.

O'Donohoe-Gibson No. 1 Perkins B, sec. 11, A.T.N.C.L. Sur. Drlg. 1,600 ft.

Guy Scholl No. 1 Cowan, Blk. 6, J.C.S.L. Sur. A-240. Tstg.; S.S.O. 996-1,000 ft.; rncmtg.

J. A. Self No. 1 Symank, sec. 11, L. & M. Pasture. Loc.

Clay County

Green Mt. Oil Co. No. 1 Staggs, sec. 14, A.C.S.L. Sur. Loc.

G. T. Morris No. 1 Boddy, T. Cook Sur. S.D.O. 810 ft.

Collin County

Sorrell et al No. 1 D. R. Clark, J. Rowland Sur. Spudded and S.D.

Cooke County

Wm. D. Compton No. 1 P. Tucker, J. Barnett Sur. A-42. Drlg. 575 ft.

Denver P. & R. Co. No. 1 T. H. Sears, A. Houston Sur. A-500. Drlg. 1,475 ft.

B. H. Hilburn No. 1 W. A. Harris, J. Harris Sur. A-502. Drlg. 1,500 ft.

Montour Prod. Co. No. 1 Cornelius, J. T. Bloomfield Sur. A-35. Drlg. 1,800 ft.

Peterson et al No. 1 J. M. Floyd, Chas De Morse Sur. A-305. S.D.

Ruble & Lowery No. 1 Dozier, Lot 12, P.C. S.L. Sur. R.U.R.

Denton County

Carlysle & Wilson No. 1 J. P. Knox, J. Howard Sur. A-542. Gas sd. 1,950-55 ft.; est. 10,000,000 ft.; rng. 5 3/16-in.

J. C. Foster No. 1 Jeffcoat, J. West Sur. Drlg. 1,560 ft.

C. C. Minnick No. 1 C. N. Price, J. Doggett Sur. A-1,322. Fsg. 270 ft.

Oil Finance No. 1 J. S. Gambill, S.D. 1,562 ft.

J. Stogner No. 1 J. Maxwell, Jno. Morton Sur. A-792. Spudded and S.D.

Grayson County

F. Gailbreath et al No. 1 Singletary, Chas Quillian Sur. A-989. 6⅝-in. csg. 1,86 ft.; S.S.O. 3,860-65 ft.; tstd. wtr. and trace oil; drlg. 3,980 ft.

Red Wing Oil Co. No. 1 Mulder, J. Barefoot Sur. S.D. 180 ft.

Olson et al No. 1 D. R. Ulger, P. P. Cole Sur. A-301. Drlg. 3,110 ft.

Hardeman County

Locke & Durham No. 1 Schoppa, sec. 57, H.&T.C. Sur., Blk. 16. R.U.S.T.

Jack County

Bryson O. & G. Co. No. 1 O. Loving, T.& N.O. Sur. A-852. Drlg. L. 4,470 ft.

Danciger O. & R. Co. No. 1 Kinder, B.S.&F. Sur. A-83. C.O. 1,320 ft.

Hamilton Pet. Co. No. 1 J. S. Rhodes, Wm. Orr Sur. A-849. Drlg. 1,100 ft.

Hanlon-Buchanan, Inc., No. 1 Calvin, J. B. Calvin Sur. P.O.P. est 150 bbls; 2,869-89 ft. C.O. and testing.

Mrs. D. P. Jack No. 1 Hardy, T.E.&L. Sur. No. 2,555. Drk.

Sam Shabay No. 1 L. W. Fields, sec. 1, S.P.R.R. Sur. Loc.

Tillman et al No. 1 Jones, J. Helmstetter Sur. No. A-1,269. Drk.

Montague County

Gutowsky & Clay No. 1 Lemon, C. K. Ham Sur. Drlg. 2,800 ft.

W. E. Halbert No. 1 Petty, S. A. Southerland Sur. A-992. Drlg. 2,900 ft.

Edgar T. Hart No. 1 W. L. Davis, sec. 12, Jack Co. Sch. Ld. Spdg.

C. A. Lupton No. 1 Ball, T.E.&L. Sur. A-800. Loc.

D. L. Monroe No. 1 Sappington, sec. 64, E.T.R.R. Sur. A-1,443. Drlg. 400 ft.

Sinclair Prairie No. 1 Hodges, Blk. 55, K. C.S.L. Sur. S.S.O. 1,750-65 ft.; P.O.P.

Throckmorton County

R. J. Williams No. 1 W. B. Parrott, T.E. &L. Sur., sec. 961. S.D.O. 2,520 ft.

Wichita County

T. B. Medders No. 1 Foster, sec. 2, S.A. &M.G. Sur. Spdg.

Palmer et al No. 1 McCarty, S. O. Fowler Sur. No. A-78. Fsg. 1,820 ft.

Wilbarger County

Rathke Oil Co. No. 1 Waggoner, H.&T.C. Sur., Blk. 33. Drlg. 2,320 ft.

Wise County

Texas-Canadian Dev. Co. No. 1 L. W. Still, Isham Epps Sur. A-267. Loc.

Young County

R. C. Albright No. 1 W. E. Steele, I.R.R. Sur. A-156. R.U.C.T.

Alexander & Long No. 1 Goldston, S.P.R.R. Sur. A-263. Drlg. 3,535 ft.

Heimerich & Payne No. 1 J. H. Rubenkoenig, J. Poitevent Sur. 9-227. Drlg. 4,220 ft.

A. T. Strong No. 1 Davidson, R. C. Eddleman Sur. A-1,420. Drlg. 4,155 ft.

R. H. Vise No. 1 Dollins, T.E.&L. Sur. 615. Drlg. 2,655 ft.

C. V. Welch No. 1 Street, M. E. Criswell Sur. A-1,772. Fsg. 1,040 ft.

L. W. Wickes No. 1 McCluskey, Green Sur. Drlg. 3,860 ft.

Yorktex Pet. Co. No. 1 F. G. Burnett, G. W. Hills Sur. A-151. Tstg. 4,020-80 ft.

WEST TEXAS WILDCATS

Andrews County

American Liberty Oil Co. No. 1 Mayhew, sec. 23, Blk. A-51, P.S.L. Sur. Drlg. 3,300 ft.

G. F. Getty, Inc., No. 1 R. H. Lindley, sec. 4, Blk. A-46. Drlg. 3,812 ft.

Grisham Hunter Corp. No. 1 Ratliff & Bedford. S.D. 4,805 ft.

Wm. Hannigan No. 1 Logsden, sec. 5, Blk. A-32. S.D. 5,020 ft.

Hannigan No. 1 Lotus Oil Co., sec. 18, Blk. A-48, P.S.L. Sur. Loc.

R. H. Henderson No. 1 J. E. Parker, sec. 35, P.S.L. Sur. A-43. T.D. 4,555 ft.; installing flow valves.

Shell Pet. Corp. No. 1-E F. King, 660 ft. S and E, sec. 10, Blk. A-42, P.S.L. Sur. M.I.M.

Sinclair Prairie Oil Co. No. 1 E. Cowden, sec. 12, Blk. 44, Twp. 2n, T.&P. Sur. T.D. 4,300 ft.; completing.

Brewster County

F. C. Dodson No. 1 Texas American Synd., sec. 66, Blk. 10, G.H.&S.A. Sur. Drlg. 3,902 ft.

Crane County

Clark et al No. 1 Jordan, sec. 12, Blk. B-22, P.S.L. Sur. Drlg. 3,066 ft.

Gulf Oil Corp. No. 2 McKnight, sec. 9, Blk. B-21. Fsg. 3,812 ft.

Gulf Oil Corp. No. 2 Snodgrass, sec. 1, Blk. B-25. T.D. 3,550 ft.; P.B. 3,540 ft.; fsg.

Moore Bros. No. 1 Barnsley, sec. 43, Blk. 32, P.S.L. Sur. S.D. 6,509 ft.

Crockett County

T. P. Coal & Oil Co. No. 1 Bair, sec. 51, Blk. 1, I.&G.N. Sur. Drlg. 651 ft.

Culbertson County

Grisham & Hunter No. 1 fee, SE cor. sec. 22, Blk. 54, P.S.L. Sur. M.I.M.

Ector County

Sinclair Prairie Oil Co. No. 2-A Johnson, sec. 48, Blk. 43, Twp. 1s, T.&P. Sur. T.D. 3,980 ft.; R.U.S.T.

Edwards County

D. Auld No. 1 Rigsby, sec. 16, G.C.&S.F. Sur., 6 mi. N and 2 mi. W of Plateau No. 1 Hatch. Loc.

Plateau Oil Co. No. 1 Hatch. S.D. 4,753 ft.

Fisher County

L. A. Daniels et al No. 1 J. J. Nickless T.D. 2,030 ft.; ran csg.

Martin et al No. 1 Brown, W. E. Richardson Sur., sec. 4, Blk. R. Drlg. 87 ft.

Southern Oil Co. No. 1 Robinson, sec. 172, Blk. 2, H.&T.C. Sur., 2½ mi. NE of Raton. Drlg. 613 ft.

Gaines County

Amerada Pet. Corp. No. 1 Robbins, sec. 9, Sur. A-22. Drlg. 4,821 ft.

Stanolind O. & G. Co. No. 1 Morrow. Drlg. 4,825 ft.

Glasscock County

Fleetborn Oil Co. No. 1 Black Arrow, sec. 3, Blk. 34, Twp. 3s, T.&P. Sur. Drlg. 1,300 ft.

Shell Pet. Corp. No. 1 McDowell, sec. 41, Blk. 34, Twp. 2s, T.&R. Sur. Drlg. 914 ft.

Hockley County

Texas Co. No. 1 B. Slaughter, Labour 83, League 38, Zavala Co. Sch. Lds. T.D. 3,965 ft.; straightreaming.

Howard County

Dick Graham No. 1 Great West Ref. Co., Sec. 32, Twp. 1n, T.&P. Sur. R.U.

Johnson No. 3-C Hyman, 330 ft. from S and 2,310 ft. from E, sec. 88, Blk. 29, W.&N.W. Sur. To spud.

Hudspeth County

Haymon Krupp Oil & Ld Co. No. 1 Thaxton, SE¼ sec. 34, Blk. 74, Twp. 6. T.D. 2,635 ft.; U.R. csg.

Jones County

H. D. Egger et al No. 1 O. Roberts, sec. 26, Orphan Asylum Lds. S.D. 1,508 ft.

Fain-McGaha, Inc., et al No. 1 Lotspeick, 220 ft. from N and E, sec. 40, Blk. 15, T.&P. Sur. Loc.

Fain-McGaha, Inc., No. 1 Lewis et al, 1,100 ft. from W and 1,980 ft. from S, sec. 37, Blk. 15, T.&P. Sur. To spud.

McMann et al No. 1 Dyer sec. 12, Blk. 2, S.P.R.R. Sur. R.U.

Oyster & Griffith No. 1 Bumpass, A. Jones Sur., 3 mi. SW of Truby. Drlg. 2,412 ft.

Oyster et al No. 1 King, N. Scott Sur. No. 14. Drlg. 1,333 ft.

J. L. Reeves No. 1 Kelly, C. Martinez Sur., 1½ mi. N of Hawley. S.D. 2,050 ft.

Texas Inland Oil Co. No. 1 J. K. Pittard, sec. 37, Orphan Asylum Lds. S.D. 2,365 ft.

Ungren & Frazier No. 1 J. J. Steele, 1,140 ft. from S and 2,440 ft. from E, sec. 11, Blk. 15, T.&P. Sur. Drlg. 1,101 ft.

Loving County

Mason Oil Co. No. 2 M. Kyle, sec. 20, Blk. 55, Twp. 1s, T.&P. Sur. T.D. 3,910 ft.; top Delaware 3,859 ft.; flowed 15 B.P.H. after shot.

Nolan County

Dr. Robinson Co. No. 1 E. Gabler, sec. 26, Blk. X, T.&P. Sur. Drlg. 2,630 ft.

Pecos County

Bahan & Rhodes No. 1-B Bonebrake, sec. 116, Blk. 8, H.&G.N. Sur. T.D. 2,290 ft.; sdwgng. pipe.

Hightower Oil Corp. No. 1 Holmes, sec. 6, Blk. C-3, E.L.R.R. Sur. Drlg. 2,373 ft.

Humble O. & R. Co. No. 1 E. M. Gray, sec. 94, Blk. 11, G.H.&S.A. Sur.; 5,000-ft. test. Drlg. plug. 142 ft.

Lee Pet. Corp. et al No. 1 J. L. Nutt, sec. 1, W. D. Henley Sur. Drlg. 1,129 ft.

E. R. Minshall, No. 1 Banker, sec. 25, Blk. 146, T.&St.L. Sur. T.D. 2,815 ft.; drlg. by tools.

S. Thompson No. 1 Elsinore Cattle Co., sec. 54, Blk. D, G.C.&S.F. Sur. Drlg. 4,200 ft.

Union Oil & Mining Co. No. 1-A Magnolia, 330 ft. from S and E of N½, sec. 5, Blk. 9, H.&G.N. Sur. Loc.

Young No. 1 Bailey, sec. 23, Blk. 178, T.C. R.R. Sur. S.D. 830 ft.

Young Oil Co. No. 1 Perry, sec. 3, Blk. Z, T.C. Sur. M.I.M.

Presidio County

L. C. Brite No. 4 fee, C NW¼ sec. 113, Blk. 12, G.H.&S.A. Sur. Drk.

A. H. Main No. 1 Greenlee, sec. 40, Blk. 347, 13 mi. NE of Marfa. M.I.M.

Reagan County

Bahan & Rhodes No. 1 Kloh, sec. 37, Blk. 37, Twp. 5s, T. & P. Sur., NW cor. of county. Drlg. 900 ft.

Reeves County

Grisham & Hunter No. 1 Montgomery, sec. 1, W. B. King Sur. R.U. rotary.

Schleicher County

Mangus Oil Co. No. 1 Judkins & Spencer, C SW¼ sec. 4, W. W. Russell, grantee. Elev. 2,209 ft.; T.D. 6,527 ft.; P.B. 5,912 ft.; fsg. swab.

Scurry County

Bristow & Cantrell No. 1 Tomlinson, 2,310 ft. from S and 330 ft. from E, sec. 122, Blk. 97, H.&T.C. Sur. Loc.

Terrell County

Ohio Oil Co. No. 1 M. H. Goode, sec. 26 Blk. 161, G.C.&S.F. Sur. Drlg. 8,003 ft.

Terry County

W. L. Pickens et al No. 1 Lewright, sec. 1, Blk. C-37, P.S.L. Sur. Drlg. 4,300 ft.

Uscan Oil Co. No. 1 Brownfield, C N¼ sec. 54, Blk. K, P.S.L. Sur. S.D. 5,642 ft.

Upton County

R. H. Henderson No. 1 Reese, sec. 16, Blk. 3½, C.C.S.D.&R.G.N.G. Sur. T.D. 3,080 ft.; P.B. 2,900 ft.; shot and acidized; testing.

J. H. Myles & Son No. 1 Hughes, sec. 91, Blk. Y, G.C.&S.F. Sur. Drlg. 754 ft.

Dan Short No. 1 Webb, sec. 174, Blk. E, C.C.S.D.&R.G.N.G. Sur. Fsg. 875 ft.

Ward County

Bentley & Massey No. 1 Boogher. D.&A. 2,240 ft.

Moran et al No. 1 Reynolds, sec. 21, Blk. 5, H.&T.C. Sur. S.D. 850 ft.

Winkler County

Adams & Bradley No. 1 Edwards, sec. 6, Blk. C-23. Drlg. 2,835 ft.

Read & Duffey No. 1 Sealey, sec. 8, Blk. A, G.M.M.B.&A. Sur. S.D. 4,508 ft.

Richardson Oils, Inc., No. 1 Humble-Walton, sec. 3, Blk. B-3, P.S.L. Sur. Drlg. 3,100 ft.

Sun Oil Co. No. 1 Edwards, sec. 6, Blk. C-23, P.S.L. Sur. T.D. 3,175 ft.; 700 ft. oil in hole.

York & Harper et al No. 1 Gunter & Munson, sec. 7, Blk. C, G.M.M.B.&A. Sur. T.D. 828 ft.; set csg.

Yoakum County

Texas Pacific Coal & Oil Co. No. 1 Bennett, sec. 678, John H. Gibson Sur. T.D. 5,236 ft.; acidized; flowed 357 bbls. in 24 hrs.

RANGER (CENTRAL TEXAS) DISTRICT

Callahan County

A. R. Forster No. 1 C. B. Snyder, NW cor. NE¼ county, 490 ft. from N line and 1,470 ft. from E line, sec. 139, B.B.B.&C. Sur. Loc.

H. V. House et al No. 1 R. Smart "B," 5 mi. SW of Admiral, W. T. Lassiter Sur. Drlg. 795 ft.

Hal Hughes No. 2 Williams, 7 mi. NE Baird, C SE¼ SE sec. 61, B.O.A. Sur. 2,500-ft. test; drlg. 1,905 ft.

Mesa Verde Oil Co. No. 1 Klepper, 3 mi. N Clyde, sec. 69, B.B.B.&C. Sur. Drlg. 1,225 ft.

F. R. Midkiff No. 1 Hunt, NE cor. county, sec. 107, University School Lands. Loc.

J. V. Wright No. 1 Warren, W½ SW¼ sec. 110, B.B.B.&C. Sur. Rig up.

Coleman County

Anzac Oil Corp. et al No. 1-H Morris, 12 mi. NE Coleman, J. Harris Sur. No. 77. Drlg. 200 ft.

Midfield Oil Co. No. 1 T. H. Ward, sec. 274, W. Echels Sur. S.D.O. 1,500 ft.

Hamilton County

Seaboard Oil Co. No. 1 fee, A. C. Grimes Sur., 10 mi. N of Huntington. Drlg. 3,702 ft.

Palo Pinto County

D. H. & C. Drlg. Corp. No. 1 Davenport, 6 mi. SE Palo Pinto, L. F. Margaret Sur. A-309. T.D. 2,000 ft.; moving in rotary.

Paul Garrett No. 1 Mabry heirs, NE cor. county, sec. 2,572 ft, T.E.&L. Sur. S.D. 314 ft.

Palo Pinto O. & G. Corp. No. 1 Zimicki N edge Strawn, Henry Bird Sur. Shot 60 qts.; testg. casing.

Shackelford County

Green, Jones & Stasney No. 1 Davis, 7 mi. S Morris-Buie pool, 220 ft. from S and W lines, sec. 29, T.&P. Sur., Blk. 13. Plts.

Humble O. & R. Co. No. 1 Morris B, 2 mi. E Morris-Buie pool, 1,320 ft. from S, 2,540 ft. from W lines, sec. 188, E.T.R.R. Sur. Rigging spudder.

Owen-Snebold Oil Corp. No. 1 Ivey, NW cor. county, sec. 159, B.B.B.&C. Sur. Est. 2,000,000 ft. gas; sd. 1,925-27 ft.; S.D. 1,927 ft.; drlg. plug.

Ungren & Frazier et al No. 1 Snyder, 3 mi. SW Sedwick, sec. 26, L.A.L. Sur. Ellenburger test. S.D. for rotary.

Stephens County

C. B. Christie et al No. 1 E. S. Maury, 4 mi. W of Crystal Falls, J. Koehler Sur., Abst. 26. Drlg. 2,100 ft.

W. T. Garret et al No. 1 Echols, 6 mi. SE of Ivan, W½, sec. 10, Blk. 3, S.P.R. R. Sur. Drlg. 2,927 ft.

Hanrahan & Bedingfield No. 1 Guest, 2 mi. NW Frankell, sec. 30, T.&P. Sur., Blk. 6. Spud. and S.D.

Mudge Oil Co. No. 1 W. P. Smith, 2 mi NW of Ivan, sec. 14, S.P.R.R. Sur., Blk. 2. S.D. 3,329 ft.

Tarrant County

E. E. Hoffpauir et al No. 2 W. H. Davis, 2 mi. S Arlington, H. Blackwell Sur. Drlg. 1,410 ft.

Throckmorton County

R. J. Williams et al No. 1 W. B. Parrott, 4 mi. NW of Woodson, sec. 961, T.E.&L. Sur. S.D. 2,612 ft.

Wise County

Texas-Canadian Dev. Co. No. 1 L. W. Still, NE cor. county, Isham Epps Sur. Loc. for 3,500-ft. test; moving in.

West Texas Fields

(Continued from Page 209)

2,143-60 feet, 426 bbls. Tannehill and others No. 1 Rainwater, dry and abandoned 3,010 feet, elevation 1,870 feet. Brown Eagle Oil Co. No. 1 Minter, dry and abandoned 2,170 feet, elevation 1,660 feet.

Glasscock County

Continental Oil Co. No. 21-S Settles, 1,295 feet, plugged back to 1,282 feet, 390 bbls. McLaughlin No. 3 Chalk, 1,557-95 feet, 198 bbls.

Pecos County

Paul Childress No. 13 Smith, 355-73 feet, 13 bbls. C. A. Everets No. 1 W. C. Tyrrell, dry and abandoned 2,560 feet, elevation 2,747 feet. Ohio Oil Co. No. 52-A Yates, 1,380-1,484 feet, 180 bbls. per hour; No. 4-E Yates, 1,340-1,486 feet, 3,775 feet.

Winkler County

Eastland Oil Co. No. 4 Pure-Clapp, 2,710-3,150 feet, shot, 1,724 bbls.; No. 2-B Clapp, 2,770-3,102 feet, shot, 2,526 bbls. Navarro Oil Co. No. 4 Clapp, 2,715-3,130 feet, shot, 505 bbls. Mid-Continent Petroleum Corp. No. 11 Walton, 2,808-2,960 feet, shot, 1,241 bbls. Magnolia Petroleum Corp. No. 51 Walton, 2,640-2,989 feet, shot, 876 bbls.; No. 52 Walton, 2,820-2,960 feet, shot, 744 bbls. Sinclair Prairie Oil Co. No. 10-C Walton, 2,785-2,975 feet, 1,268 bbls. Skelly Oil Co. No. 17 Halley, 2,747-2,900 feet, shot, 108 bbls. Illinois Oil Co. No. 1 Brown & Altman, 2,873-3,140 feet, shot, 352 bbls. Adams and Bradley No. 1 Edwards, 2,967-98 feet, 735 bbls. Gulf Oil Corp. No. 13 Daugherty, 2,820-3,000 feet, shot, 350 bbls.

Ward County

Standard Oil Co. of Texas No. 45 Durgin, 2,386-2,529 feet, 292 bbls. Empire Gas & Fuel Co. No. 20 McDonald, 2,245-2,457 feet, shot, 676 bbls. Richardson Oils, Inc., No. 15 Hathaway, 2,463-2,606 feet, 1,230 bbls. in three hours. Gulf Oil Corp. No. 77 O'Brien, 2,628-2,747 feet, shot, 619 bbls.

Upton County

Cardinal Oil Co. No. 1-C Wooley, 2,083-2,115 feet, acidized, 213 bbls.; No. 1 Cordova-Union, 2,173-75 feet, 122 bbls oil, 12 per cent B.S. and water; Devore and others No. 1 Burleson and others, 2,135-60 feet, acidized, 463 bbls. Humble Oil & Refining Co. No. 4 Reese, 2,500-2,635 feet, acidized, 456 bbls.

CENTRAL TEXAS COMPLETIONS

Callahan County

R. F. St. John No. 4 Kniffen, 3 miles north of Clyde, sand 1,618-25 feet, 3,500,000 feet gas.

Comanche County

H. L. Baughman No. 1 Hardin, Asa Hoxey Survey, 7 miles northeast of Comanche, temporarily abandoned 775 feet.

Eastland County

Hickok Production & Development Co. No. 2 Kleiner, 1 mile northeast of Cisco, gas sand 3,391-3,408 feet, total depth 3,437 feet, shot 20 quarts, 3,000,000 feet gas.

Shackelford County

Albany Oil Co. and Freeman No. 1 Isaacson, 4 miles northwest of Morris-Buie pool, total depth 1,952 feet, dry and abandoned. Baker & Pardue No. 4 Davis, total depth 1,712 feet, dry and abandoned. W. E. Butler No. 9 Morris, 1,583-1,604 feet, 225 bbls. Farris & Parker No. 2 Baker, total depth 1,719 feet, dry and abandoned. Kendrick & Wooten No. 1 T. W. Lee, 5 miles east of Albany, 648 feet, dry and abandoned. Reliance Oil & Refining Co. No. 6-B Nail, 1,546-64 feet, 6 bbls. Roeser & Pendleton No. 1 Dawson & Conway, 2 miles southwest of Morris-Buie pool, total depth 1,775 feet, dry and abandoned.

Throckmorton County

Canyon Oil & Gas Co. No. 2 Wright, 2 miles south of Throckmorton, total depth 366 feet, dry and abandoned.

PERSONAL

R. W. LOWE, general superintendent of production department of Standard Oil Company of Louisiana, Shreveport, recently retired after 26 years service with that company. Approximately 130 of his friends got together in Shreveport recently to attend a dinner given in his honor. Mr. Lowe's connection with the oil industry dates back to the busy days of the Spindletop field, where he first served as a rig builder's helper. From that start his rise in the oil business has been steady. Mr. Lowe went with Standard of Louisiana upon the purchase of the Benedum & Trees properties at Trees, La., in 1910. Following several years as assistant to superintendent, Mr. Lowe was made general superintendent in 1922.

HUGH CORROUGH, engineer for the Alco Products Company, was a business visitor in St. Louis, Mo., in the past week.

H. P. CREEL, assistant chief engineer, Texas Company refinery, West Tulsa, is recovering from a major operation and expects to return to duty soon.

I. W. ISOM, vice president of the Consolidated Oil Corporation with offices in New York, visited at the company's East Chicago plant in the past week.

H. C. LESSENGER has joined the northwestern branch of the Minerals division of Louisiana Department of Conservation, Shreveport, La., as field agent. Formerly he was an independent operator.

C. B. MAPES, secretary, Mid-Continent Oil and Gas Association, Tulsa, was elected director of the National Society of Professional Engineers, Washington, D. C., to represent Oklahoma division in that body.

C. W. CHANCELLOR and BEN F. HORTON, land men for Sinclair Prairie Oil Company in Oklahoma City, Okla., and Wichita, Kans., respectively, were recent visitors at the company headquarters in Tulsa.

W. H. CARSON and members of the University of Oklahoma mechanical and petroleum engineering school faculty will be hosts to a group of engineers invited to Norman, Okla., to discuss curriculum problems on February 6.

GEORGE A. RENARD, executive secretary of the National Association of Purchasing Agents, will discuss the Robinson-Patman anti-price discrimination act in address at the meeting of the Tulsa Purchasing Agents Association Thursday night, January 27.

H. EMERY GALBRAITH, formerly of Tulsa, now is a member of the field sales force of Lucey Products Company, with headquarters at Gilliam, La.

A. C. JOHNSON of Calgary, Alberta, was recently elected president of the Anaconda Oil Company; O. L. REINECKE, first vice president; J. T. ATKINSON, second vice president; A. J. SCOTT, managing director and secretary-treasurer.

CHARLES H. BLOCK, of Wyandotte, Mich., former bank official, has been named a director of the new Dixie Refining Company, planning to erect a 5,500-bbl. refinery at Trenton, Mich., this year. PAUL R. KEMPF, president, announced the election.

GEORGE B. TALBOT, prominent Saginaw, Mich., oil operator, and CLARENCE E. LARSON, of Highland Park, Mich., have been elected directors of the J. V. Wicklund Development Company, of Michigan. Mr. Talbot is head of the Midway Tool Company at Saginaw. Mr. Larson is new vice president of the Wicklund company.

C. H. KEPLINGER of Shell Petroleum has been named chairman of the program committee for the Mid-Continent production division of A.P.I. at Tulsa February 25 and 26. C. F. CAMP of the C. F. Camp Company is chairman of the entertainment committee.

MILTON LEWIS is the new sales department manager for the Ralph M. Parsons Company at Chicago. He formerly was sales representative on the Pacific Coast. ARTHUR ZOLL, sales engineer, has been assigned to the Mid-Continent area, with headquarters at Dallas, Tex.

ROBERT E. HARDWICKE, attorney of Fort Worth, Tex., has compiled a bibliography on material pertaining to petroleum and natural gas; the booklet was printed by the petroleum engineering and law schools of the University of Texas, and copies may be obtained from H. H. POWER, of the engineering school.

F. C. SEALY, production manager for the South Texas division of the Texas Company, with headquarters in Houston, has been transferred to a similar position in California. J. A. BIRMINGHAM, manager of the California division, will assume Mr. Sealy's duties in South Texas. The change will be in effect February 1. The transfer was announced by R. OGARRIO, of New York, vice president in charge of production, who is in Houston on an inspection tour.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

John P. Calvert, superintendent of the western division of Tide Water Pipe Line Company, dies in Phoenix, Ariz., where he had gone in search of health.

Pennsylvania oil price rises to $1.50 per barrel, but Oklahoma Mid-Continent operators are still getting 57 cents per barrel.

20 YEARS AGO

James Riley Dye and Charles H. Robinson, prominent West Virginia oil operators, pass away in Sistersville, the former from heart disease and the latter from ptomaine poisoning.

Mid-Co Petroleum Corporation opens the Billings pool in Oklahoma.

A. J. Graff, first of American oil men to reach home as a refugee from Rumania, describes how the oil fields there were destroyed to keep them from the invading German army.

10 YEARS AGO

The air-gas lift method of flowing oil wells is proving a success in the Seminole field in Oklahoma.

The original Seminole pool, where Wilcox sand was discovered early in July, 1926, is producing 218,000 barrels after a little more than six months.

A 365-barrel well is completed in Guernsey County, Ohio.

Heavy minerals, barite and hematite, are being used in the drilling mud in the Ventura field in California, where cavey formations and high-pressure gas are serious problems.

K. R. TEIS, of E. H. Moore, Inc., of Tulsa, attended the inauguration of President Roosevelt at Washington last week.

SHEP MEIER, representative for Kerotest Manufacturing Company, Tulsa, has recently returned from a business trip to the factory at Pittsburgh, Pa.

GEORGE W. BERRY has been transferred from the Houston, Tex., office of Sinclair Prairie Oil Company to the Fort Worth land title department.

C. P. RIEL, president of Reward Oils, Ltd., of Calgary, Alberta, visited Toronto and Montreal recently in connection with prospective oil development in Turner Valley.

J. L. ESSLEY, president and FRANK MAC KAY, vice president, of Superior Oil Corporation, have been on a tour of inspection of the company's properties in Texas.

EARL OLIVER, Ponca City, Okla., chairman of the stabilization committee of the A.I.M.E., spent several days in Tulsa last week in connection with the work of his committee.

LARRY O. SEAMAN, formerly in the field department of the Sinclair Prairie Oil Company, Texas district, has been moved to Fort Worth, Tex., office of that company and put in charge of geophysical exploration.

JOHN HUFFMAN, formerly doing independent civil engineering work, has been attached to the staff of the recently enlarged Minerals division, northwestern branch of Louisiana Department of Conservation, Shreveport, La., as civil engineer.

PARAGRAPHS

L. L. PALMER, of San Antonio, Tex., has moved to Wichita, Kans., to succeed EDWARD KOESTER as Kansas division geologist for W. C. McBride, Inc. Mr. Koester will join Darby Petroleum Corporation as division geologist in Kansas, February 1.

M. E. NICKLIN, director of export sales for Waukesha Motor Company, has made arrangements for a circle tour of Latin America via airways. Mr. Nicklin will be out of the United States 92 days, will have covered 18,000 miles and yet only 12 days are scheduled for travel, leaving 80 days for business purposes.

H. EMERY GALBRAITH has joined the field sales organization of Lucey Products Corporation, with headquarters at Gilliam, La. Mr. Galbraith has had long experience in the various phases of the oil business, having previously been in the drilling contracting business, and being now interested in producing properties in the Pine Island, Louisiana, field.

GEORGES VORBE, geologist at Midland, Tex., for the Stanolind Oil & Gas Company for the past two and one-half years, has resigned his position with that company. Mr. Vorbe was formerly connected with the Texas and Pacific Coal, Oil & Gas Company in the capacity of district geologist and office manager. He is one of the first oil men to have located in the West Texas area, having first gone to Midland more than 10 years ago.

C. H. WRIGHT, president of Sunray Oil Company, has been in Los Angeles, Calif., on business.

JAMES C. DONNELL, vice president and director of Ohio Oil Company, Findlay, Ohio, was a recent visitor at the company's Tulsa offices.

H. ZWICK, counsel for Continental Oil Company, was convalescing in a Ponca City, Okla., hospital after undergoing a major operation recently.

R. G. MOSS is new division geologist in Kansas for Phillips Petroleum Company, succeeding JOHN F. KINKLE, who died of pneumonia recently.

NOWERY J. SMITH, president of the Nowery J. Smith Supply Company, Houston, Tex., recently returned from a two weeks trip to New York.

R. D. ROBEY, formerly of the Olson Drilling Company, has opened offices in the National Bank of Tulsa Building, Tulsa, and engaged in the drilling contracting business for himself.

W. A. CURRIE, of Shreveport, La., has been elected president of the newly formed Twin Cities Drilling Corporation, with ROY H. CURRIE vice president, and ROBERT W. WINN, secretary-treasurer.

DON EMERY, formerly head of Phillips Petroleum Company's legal department in Texas, has been appointed vice president of the company at Bartlesville, Okla., and assistant general counsel of the legal department. He has been connected with the Phillips company since 1925.

WILLIAM E. SCHROEDER, Michigan sales representative of Lee C. Moore & Company, is engaged to be married to MISS MARGARETTA WOOD OLIVER. The wedding will be an event of the summer.

F. W. McCURRY, vice president in charge of manufacturing for Derby Oil Company, and DR. HAROLD MESSMORE, Derby research chemist, demonstrated refining methods at the meeting of the Petroleum Accountants Society of Kansas in Wichita, Kans., last Thursday. They used a model refinery constructed of glass.

MILTON LEWIS of Los Angeles, Calif., who for several years has been sales representative on the Pacific Coast of the Ralph M. Parsons Company and the Southwestern Engineering Company, has been transferred to the home office in Chicago and placed in charge of the Parsons sales department. ARTHUR ZOLL, Parsons sales engineer, who for several months has been active in the Michigan field, with headquarters in Detroit, has been placed in charge of the Mid-Continent territory with headquarters in the Tower Petroleum Building, Dallas, Tex.

W. A. BAKER, assistant comptroller of the Shell Petroleum Corporation since 1933, has been appointed comptroller. He also will continue as assistant to J. W. WATSON, vice president-treasurer, whose executive office formerly combined the comptroller's duties. Mr. Baker joined the Shell organization in 1927 as an assistant in the head office accounting department of the Shell Oil Company in San Francisco, Calif. Before his transfer to St. Louis, Mo., in 1933 as assistant comptroller of Shell Petroleum Corporation he gained a broad experience on the Pacific Coast as general auditor and latterly assistant operations manager of Shell Oil Company.

MAX WOODWARD, formerly of Oklahoma, has been transferred to Michigan to succeed VERNE PALMER in charge of Black, Sivalls & Bryson offices in Mount Pleasant, Mich. Mr. Palmer has returned to Oklahoma.

Now Heads Production

Fred C. Sealey, for the past three years manager for the Texas Company of the South Texas division of the production department, was appointed last week division production manager of The Texas Company of California.

FRED C. SEALEY

With the exception of time spent in the army during the World War, Mr. Sealey has been in the service of The Texas Company for 19 years, his experience covering the Rocky Mountains, Oklahoma, Kansas, Arkansas, North Texas, South Texas and South America. His first connection with the company was as assistant geologist of the Rocky Mountain division in Wyoming in 1917. The following year he enlisted in the army and served as a commissioned officer. After his discharge in January, 1919, he went back to The Texas Company and was sent to South America where he did geological work in Peru and Brazil. Returning to the United States he was assigned to the Oklahoma and Kansas division with offices in Tulsa. Later he was sent to El Dorado, Ark., and then to the Gulf Coast, as resident geologist at West Columbia. In 1922 he was promoted to division geologist for South Texas. In 1926 he was made division geologist for North Texas, and in 1929 assistant manager of the South Texas division, and in 1933 manager.

L. H. FAVROT, president of the Apex Construction Company, has moved his residence from Tulsa, to Houston, Tex.

K. M. LEITCH, of British Trans-Canada Oils, Ltd., of Calgary, Alberta, is spending a couple of weeks in eastern Canada on business.

E. J. GORMAN, general manager of the Sun Oil Company at Tulsa, has recovered from an illness of several weeks and resumed his work.

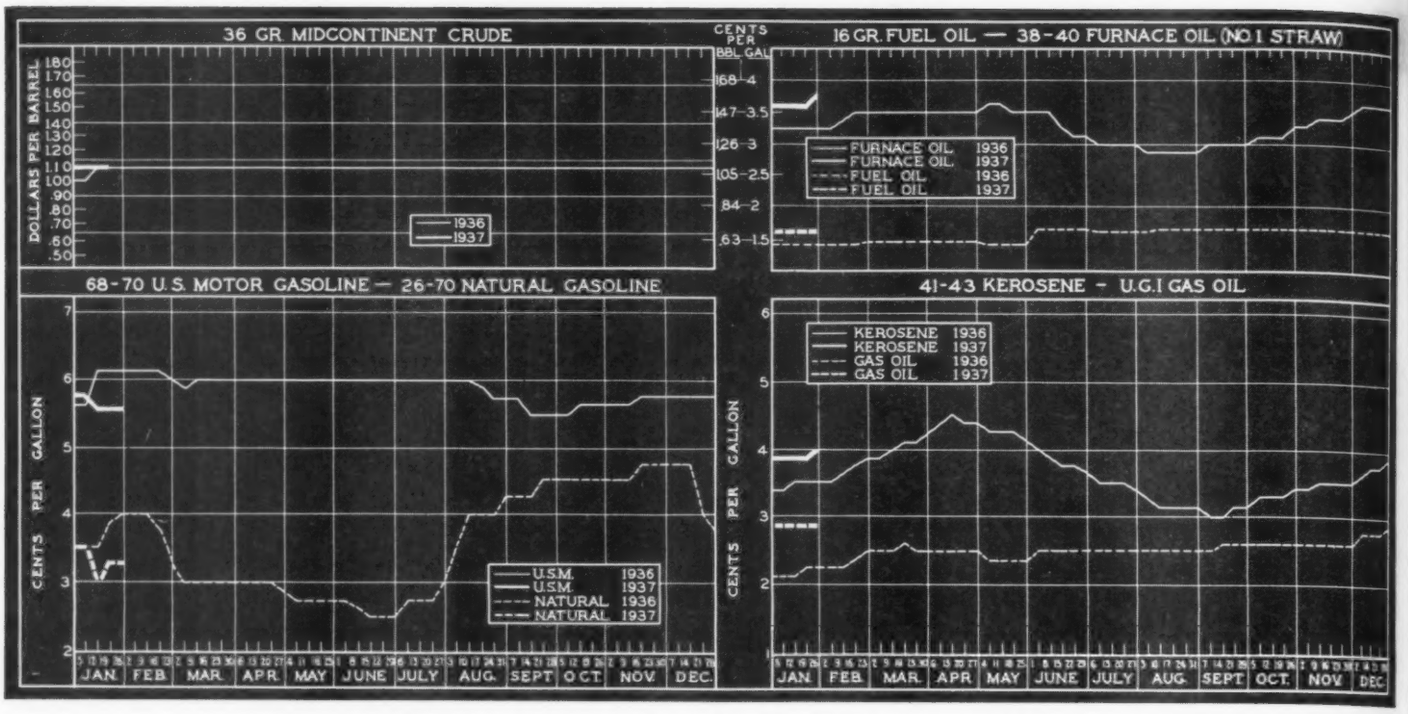
A. S. BAILEY, vice president of the Texas Pipe Line Company, Houston, Tex., returned last week from a three weeks business trip to New York.

W. L. CONNELLY, chairman of the board of directors of Sinclair Prairie Oil Company, has returned to Tulsa from a business trip to New York.

A. B. SIMONS, export representative at New York for Gaso Pump & Burner Manufacturing Company, left for a business trip to Europe after visiting at the company headquarters in Tulsa recently.

W. R. THIXTON, formerly land man for the Sinclair Prairie Oil Company at Ardmore, Okla., has been transferred to the Houston, Tex., office as district land man, replacing FRED DUMAREESE who has resigned.

ROY REYNOLDS, consulting geologist, was elected president of the Fort Worth Geological Society for 1937. A. L. AKERS, division geologist, Stanolind Oil & Gas Company, is vice president, and R. D. SPRAGUE, geologist, Sinclair Prairie Oil Company, is secretary-treasurer.



Representative Mid-Continent Quotations on Crude Oil and Refined Products. Basis Oklahoma (Group 3)

Kerosene Is Market Star in Group 3 With Still Higher Prices Predicted

By T. F. SMILEY

Kerosene was the bright particular star in the Group 3 market firmament this week. Both the 41-43 and the 42-44 grades commanded an additional eighth without difficulty. Observers expressed belief this product might easily duplicate or surpass its performance of last year, when a rise beginning in early February continued till refiners were getting 4½ cents for the 41-43 material in mid-April.

Various factors have contributed to the upward movement of kerosene. Brisk export buying which began a few months ago cleaned up available stocks so thoroughly that when the stimulus of cold weather arrived its effect was more than usually pronounced. Agricultural demand is drawing actively on kerosene supplies now and will continue to do so for several months. In addition to seasonal influences the regular differential between kerosene and the burning oils must be taken into account. The burning oils began climbing last October, and the lighter distillates are still rising. This action of the furnace oils automatically shoves kerosene to higher brackets.

SPOT GASOLINE SLOW

The gasoline spot market was rather slow, but there apparently was no real weakness. On the contrary refiners and marketers were disposed to feel gratified over the way demand was holding up in the face of discouraging motoring conditions. Neither the wintry weather which overspread much of the Group 3 consuming territory nor the floods which have disorganized travel in the Mississippi and Ohio Valleys seemed to have put a very big dent in the total sales of gasoline.

Loss of business resulting from impassable roads and withdrawal of hundreds of family cars from the highway appears to have been compensated for in large degree. It was pointed out that inundation of refineries in the Louisville, Ky., area has compelled jobbers in southern Indiana who usually got their supplies there to turn to Group 3 refiners. And while the number of family cars visiting the filling stations has fallen sharply in some districts, the purchases by bus lines has increased. Heavy purchases are being made also for trucks used in relief work in the flood districts. One large Oklahoma refiner received an emergency rush order on Monday of this week from Ohio, where flood damage is heavy.

Although the heavy demand for burning oils has compelled refiners to make more gasoline than was needed in the current market, the stocks of gasoline now in hand are not regarded by most men in the trade as threateningly burdensome. The material now going into storage is expected to be needed when the season of high consumption arrives. Some East Texas third-grade motor fuel was said to be available at concessions last week, but the area is reported well cleaned up.

Bright stocks, which went up a half-cent three weeks ago, rose another half-cent last Friday. Some steam-refined stocks went up a half-cent at the same time. The neutrals, although exhibiting no weakness, were inactive. This is accounted for by the fact that during the recent period of ridiculously low prices canny buyers went into the market and bought heavily. Until the stocks thus acquired at bargain prices run low, these buyers are not likely to be heard from. This generous purchasing had the good effect of relieving refiners of excessive inventories which had led them to cut prices.

IN NO HURRY TO SELL NATURAL

Natural gasoline prices underwent no change this week, but refinery and jobber demand was taking care of current output, and there was no sign of trouble ahead. Manufacturers are exhibiting no haste to sell at prevailing quotations. Some refiners are indicating willingness to buy in quantity at present prices, but manufacturers say there is likelihood of higher prices soon and they appear to be interested merely in selling enough from day to day to keep their stocks from becoming unwieldy.

Tractor distillates were higher, keeping in step with kerosene. Both No. 1 prime white distillate and No. 1 straw were stronger. All the furnace oils were scarce. Wax was firm, with no change in price.

Refined Oil Market Barometer

No sign of softness yet in heating oils and cold weather which struck many areas in the past week lends support to predictions they will go higher. Notwithstanding unneeded gasoline being made in the effort to supply the demand for burning oils, the motor fuel market is fairly steady. Kerosene scarce and headed upward. Bright stocks up.

MID-CONTINENT. Kerosene and bright stocks rising. Gasoline and naturals steady.

EAST COAST. Heating oils and gasoline firm. Some interrefinery buying of kerosene.

GULF COAST. Gasoline firm and outlook improving. Kerosene and burning oils strong.

PENNSYLVANIA. Bright and cylinder stocks up and looking higher. Neutrals more plentiful.

CALIFORNIA. Heating oil in good demand. Diesels, fuels and stove distillates firm.

CHICAGO. Kerosene up. Heating oils brisk. Gasoline even. Natural in fair demand.

Heating Oil Market Is Strengthened by Heavy Snowfall on East Coast

By H. STANLEY NORMAN

NEW YORK, Jan. 25. — Stimulated by New York's heaviest snowfall of the winter, heating oil prices which had previously shown a softening tendency regained the firm position existing up to the middle of January. While the snow was dissipated almost overnight, it served to remind fuel oil burners that supplies probably had been neglected through a long period of almost balmy weather in November and December. Reports of tank-wagon sales considerably below the posted market were eliminated under the wave of increased deliveries.

While automobile driving was restricted for 48 hours, this was insufficient to precipitate any marked change in the general market. The retail price warfare in Brooklyn and other scattered points continues but without apparent tendency to spread.

However, despite mounting stocks in the nation, tankcar gasoline prices in the eastern seaboard territory are holding firm. In Pennsylvania, the 65-octane grade motor fuel was reported last week available at 7 cents a gallon, but it was mostly moving into Ohio and caused no reaction in the seaboard territory.

Activity developed last week and earlier in the Gulf Coast cargo gasoline market with French buyers particularly active. One mixed cargo of U. S. Motor and 64-66, 375-endpoint motor fuel was reported sold for 5.5 and 5.75 cents a gallon, respectively for the two grades. The cargo is scheduled for loading in February or March. Three cargoes of 70-octane gasoline were also reported sold for 6 to 6.125 cents a gallon, with delivery in boats at the Gulf scheduled in February. Other European buyers have inquiries in the market for gasoline and have been actively soliciting bids.

REFINERS HESITATE TO QUOTE

Refiners are hesitant to quote prices over a long period, still feeling that higher crude prices are distinctly possible in the early spring. The feeling that crude prices may advance probably accounts for the fact that inquiries for gasoline are still abroad in the market. Offers to contract for March delivery of U. S. Motor at 6 and 6¼ cents a gallon for the 64-66, 375-endpoint material were reported, but at the end of the week the purchasers had not acted to close the business.

Gulf Coast fuel oil and kerosene remain in firm position and the movement of these heating oil materials in coastwise traffic to the north Atlantic seaboard has been particularly brisk. Despite the mild winter so far in the north Atlantic district, the sharp increase in burner installations over those consuming fuel in 1935-36 is keeping heating oil material moving in a brisk fashion. Most northern jobbers are maintaining their gasoline stocks at a minimum and are keeping large supplies of fuel oil and kerosene available to meet any sudden spurt in demand.

Up to the third week of January, however, this winter has not been particularly different from that of 1935-36, according to weather bureau averages. The first heavy snow in 1935-36 in the north Atlantic district, particularly New York, was reported on January 19. However, severity of the winter following January 19 to the middle of March placed a burdensome load on refiners supplying fuel oil.

Even under the mild temperature conditions so far this winter, several refiners are reported buying kerosene in the open market paying from an eighth to a quarter of a cent per gallon over the tankcar price. This condition, however, applies to a comparatively small number in the business and the overall picture is more nearly in balance with actual supply and consumption.

LITTLE DISTRESS MATERIAL

Rather than having caused a weakness in fuel oil prices, the type of winter the Atlantic Coast has experienced so far probably has prevented substantially higher prices throughout the list of fuel oils. The distress material which was reported in the market two weeks ago was largely confined to part tank-wagons with which operators were caught, and was comparable to Saturday night bargains on perishable goods rather than indicating true marketing conditions.

Bright stocks and neutral oils in the Pennsylvania refining district are holding their previous positions without effort. However, a slight reduction was reported in 36-40 fuel oil to around 4.375 cents, largely under the influence of two Pittsburgh customers converting to another fuel at the start of last week.

Inter-refinery purchases of bright stock are maintaining that product at high quotations and there appears little probability that it will sag before the spring and summer business develops. In fact, there were reports in trade circles that a few buyers are now placing orders for spring and summer delivery. Neutral oils are likewise holding to the advanced prices established three weeks ago and suppliers of this material expect that it will continue strong for an indefinite period.

Excessive stocks of gasoline in the hands of a few suppliers were believed behind the price war which developed in Brooklyn and a few scattered parts of New Jersey and New England. However, most of the stations now operating under the Iowa plan are maintaining a fairly steady and normal range of prices between the tank-wagon and service-station quotations. Some fear over mounting gasoline stocks again was voiced in trade circles around New York last week. Some observers even predicted a sharp curtailment of refinery operations by the smaller units before winter is ended. Other observers fear that accumulation of gasoline in refinery storage will tax the capacity of the smaller units to the extent that operations may have to be halted until spring increases use of cars. There has been some evidence during the past few weeks that gasoline quotations are definitely on the weak side. So far, however, the evidence has been confined to an occasional sale a quarter to a half cent gallon below the general quotation. The fear that weakening conditions may spread as stocks increase and as storage facilities become exhausted has been expressed frequently. But there has been no reported curtailment of cracking operations and despite the increase of gasoline stocks, little worry is manifested.

The predictions that gasoline consumption will increase approximately 9 per cent during 1937 remains uppermost in the minds of observers and this thought is also apparently receiving consideration from refiners and jobbers.

KEROSENE PRICES ADVANCED

Attesting to the strength of kerosene in the Atlantic seaboard territory, Standard Oil Co. of New Jersey advanced its kerosene prices from 1 cent to 3 cents a gallon in most Tennessee points and 2 cents in Norfolk, Va. The price changes were made in the middle of January, but were more or less indicative of the strength this product is showing elsewhere. The points at which raises were actually made had been in the list of subnormal points for weeks.

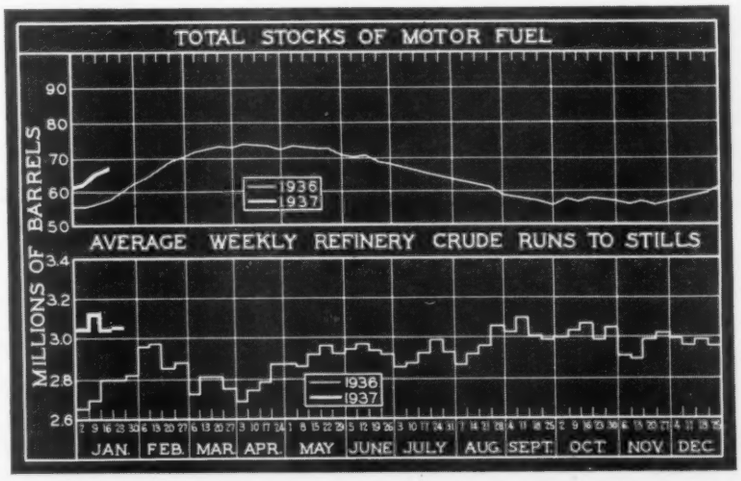
Standard of New Jersey also revised its commercial consumer policy in North and South Carolina.

A. P. I. Weekly Refinery Statistics

Week Ending January 23, 1937

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	538,000	14,605,000	8,419,000
Appalachian	88.4	100,000	2,383,000	612,000
Indiana, Illinois, Kentucky	92.1	421,000	11,078,000	5,317,000
Oklahoma, Kansas, Missouri	84.6	271,000	6,912,000	3,037,000
Inland Texas	54.3	106,000	1,901,000	1,480,000
Texas Gulf	95.5	663,000	9,642,000	7,168,000
Louisiana Gulf	96.3	137,000	1,523,000	1,755,000
North Louisiana and Arkansas	63.7	36,000	397,000	510,000
Rocky Mountains	69.7	46,000	1,317,000	716,000
California	90.9	506,000	13,616,000	71,933,000
Total reported	88.8	2,824,000	63,374,000	100,947,000
Estimated unreported	.....	231,000	4,806,000	2,494,000
*Estimated total	.....	3,055,000	68,180,000	103,441,000
*Estimated total previous week	.....	3,045,000	66,559,000	104,841,000
*January 25, 1936	.....	2,800,000	60,014,000	100,115,000

*Bureau of Mines basis, currently estimated.



RETAIL OIL MARKETS

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of January 26, 1937

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas a third grade and a premium grade are also available.

Discounts

Under the standard form of commercial consumer contract which went into effect March 1, 1934, save in California, Oregon, Washington, Arizona and Nevada, a discount of 1 cent a gallon off tank-wagon or 3 cents a gallon off retail prices is permitted for purchases between 4,000 and 10,000 gallons per month, or 4 cents a gallon off retail prices for purchases in lots of more than 10,000 gallons a month. The minimum delivery is 25 gallons.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank-wag.
Chicago, Ill.	15.7	13.7	4.0	9.8
Decatur	15.7	14.2	4.0	9.8
Joliet	15.7	14.2	4.0	9.8
Peoria	15.7	14 2	4.0	9.8
Quincy	15.5	14.0	4.0	9.6
Davenport, Ia.	15.7	14.2	4.0	9.8
Des Moines	15.5	14.0	4.0	9.6
Mason City	15.9	14.4	4.0	10.0
Sioux City	15.7	14.2	4.0	9.8
Duluth, Minn.	16.5	15.0	4.0	10.6
Mankato	16.1	14.6	4.0	10.2
Twin Cities	16.1	14.6	4.0	10.2
La Crosse, Wis.	17.1	15.6	5.0	10.2
Green Bay	17.4	15.9	5.0	10.5
Milwaukee	17.0	15.5	5.0	10.1
Detroit, Mich.	14.5	13.0	4.0	9.5
Grand Rapids	16 2	14.7	4.0	10.6
Saginaw	16.0	14.5	4.0	10.4
Evansville, Ind.	17.2	15.7	5.0	†10.3
Indianapolis	17.4	15.9	5.0	†9.3
South Bend	17.6	16.1	5.0	†9.3
Fargo, N. Dak.	17.1	15.6	4.0	11.2
Minot	18.3	16.8	4.0	12.4
Huron, S. Dak.	17.5	16.0	5.0	10.6
Kans. City, Mo.*	15.1	13.6	4.0	8.6
St. Louis*	15.4	13.9	4.0	9.5
St. Joseph*	15.1	13.6	4.0	9.2
Wichita, Kans.	14.6	13.1	4.0	8.6

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax.

(Exclusive of state general sales taxes, except Indiana and South Dakota.)

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective Dec. 7, 1936, f.o.b. Chicago tank-wagon prices: Range oil, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.3 cents. Stanolex No. 1, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex furnace oil, 1-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex A, 1-399 gallons, 5.75 cents; 400 gallons and over, 4.75 cents. Stanolex B, 1-799 gallons, 5.75 cents; 800 gallons and over, 4.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
Atl'tic City, N.J.	12.5	....	4.0	8.0
Newark	12.5	....	4.0	8.0
Annapolis, Md.	14.6	....	5.0	10.0
Baltimore	14.0	....	5.0	9.0
Cumberland	16.6	....	5.0	10.0
Wash'g'n, D.C.	12.0	15.5	3.0	9.0
Danville, Va.	17.2	....	6.0	12.9
Norfolk	16.0	....	6.0	11.5
Petersburg	16.3	....	6.0	11.7
Richmond	16.3	....	6.0	11.7
Roanoke	17.5	....	6.0	12.9
Charles'n, W.Va.	15.8	....	5.0	12.6
Parkersburg	15.1	....	5.0	11.2
Wheeling	15.0	....	5.0	12.2
Charlotte, N. C.	18.4	....	7.0	12.6
Hickory	18.9	....	7.0	13.0
Mt. Airy	18.7	....	7.0	12.8
Raleigh	18.0	....	7.0	12.1
Salisbury	18.5	....	7.0	12.7
Charleston, S. C.	17.0	....	7.0	11.1
Columbia	18.0	....	7.0	12.1
Spartansburg	18.7	....	7.0	12.9

Tank-wagon gasoline refers to dealer instead of retail price.

Price basis to commercial consumers, effective Nov. 2, 1936: On deliveries of 500 gallons or more by hose connection, consumer tankcar price plus .5 cent; less than 500 gallons, plus .75 cent, not taking deliveries by hose connection, plus 1 cent. Above schedule does not apply to North and South Carolina. Deliveries of 50 gallons or more by tank-wagon billed at price 2 cents over posted consumer tankcar price in effect at time and place of delivery. Deliveries less than 50 gallons billed at price .6 cent over posted tankcar price. Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except in New Jersey, where no discount (if necessary) is given.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline			Kero
	Tank wag.	Net dlr.	Inc. tax	tank-wag.
Atlanta, Ga.	21.5	18.5	7.0	*14.5
Augusta	20.5	17.5	7.0	*14.0
Macon	21.0	18.0	7.0	*14.5
Savannah	19.5	16.5	7.0	*13.0
Birm'ham, Ala.	22.0	19.0	8.0	13.0
Mobile	20.0	17.0	9.0	12.0
Montgomery	23.0	20.0	9.0	14.0
Jackson, Miss.	21.0	18.0	7.0	*13.0
Vicksburg	20.5	17.5	7.0	*13.0
Jacksonville, Fla.	20.0	17.0	8.0	12.0
Miami	20.0	17.0	8.0	12.5
Pensacola	22.5	19.5	9.0	12.5
Tampa	21.0	18.0	8.0	12.0
Lexington, Ky.	19.0	16.0	6.0	11.0
Covington	18.5	15.5	6.0	11.0
Louisville	19.0	16.0	6.0	10.0
Paducah	19.0	16.0	6.0	10.0

Price basis to tank-wagon consumers: Effective January 4, 1937, 3 cents per gallon below tank-wagon price. Kerosene prices in all states subject to 2 cents discount except in Kentucky where prices are net.

*Includes 1 cent state tax. Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon. Pensacola, and Tampa, Fla., have a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline			Kero.
	Dealer	Serv. sta.	Inc. tax	tank-wag.
Denver, Colo.	17.0	....	5.0	11.0
Grand Junction	19.5	....	5.0	15.0
Pueblo	17.0	....	5.0	10.0
Casper, Wyo.	17.5	....	5.0	11.5
Cheyenne	17.5	....	5.0	13.0
Butte, Mont.	19.0	....	6.0	14.5
Billings	20.5	....	6.0	14.5
Helena	20.5	....	6.0	14.5
Great Falls	20.5	....	6.0	14.5
Salt Lake, Utah	19.0	....	5.0	16.0
Twin Falls, Ida.	21.0	....	6.0	18.0
Boise	20.5	....	6.0	18.0
Albu'que, N. M.	17.0	....	6.5	13.0

*Includes one-half cent city tax.

Discount to dealers with or without contract in Continental territory: Undivided dealer discount off service station price 4 cents except in Montana where a discount of 2 cents off tank-wagon price is allowed; divided dealer accounts 3½ cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
Ohio points	17.5	(†)	5.0	*13.5

*Includes state tax of 1 cent.

†Following the leasing of service stations to dealers at many points the company no longer posts a statewide service station price.

Pacific Coast Territory

STANDARD OIL CO OF CALIFORNIA

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
San Francisco	17.0	18.0	4.0	11.5
Los Angeles	16.5	17.5	4.0	9.0
Fresno, Calif.	17.5	18.5	4.0	11.0
Phoenix, Ariz.	20.5	21.5	6.0	‡16.0
Reno, Nev.	19.5	20.5	5.0	13.0
Portland, Ore.	19.5	20.5	6.0	13.5
Seattle, Wash.	19.5	20.5	6.0	13.5
Tacoma	19.5	20.5	6.0	13.5
Spokane	22.5	23.5	6.0	16.5

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

‡Includes 5-cent state tax.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Post. deal.	Serv. sta.	Inc. tax	tank-wag.
Albany, N. Y.	13.0	....	4.0	7.75
*Met. N. Y.:				
Manhtn, Bronx	13.0	....	4.0	7.25
Staten Island	13.25	....	4.0	7.25
Q'ns & Brklyn	13.0	....	4.0	7.25
Buffalo	13.8	....	4.0	8.25
Rochester	13.8	....	4.0	8.25
Syracuse	13.8	....	4.0	8.75
Boston, Mass.	12.8	....	4.0	7.50
Portland, Me.	14.8	....	5.0	7.75
Manch'ter, N. H.	15.3	....	5.0	8.00
Burlington, Vt.	14.9	....	5.0	8.75

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Tank dlr.	Serv. sta.	Inc. tax	tank-wag.
Philadelphia, Pa.	14.0	17.5	5.0	10.0
Pittsburgh	15.0	18.5	5.0	10.5
Allentown	14.0	....	5.0	10.5
Erie	14.0	....	5.0	10.5
Scranton	14.0	....	5.0	10.5
Altoona	15.0	....	5.0	10.5
Dover, Del.	14.0	....	5.0	10.5
Wilmington	13.0	....	5.0	10.5
Springf'd, Mass.	13.3	....	4.0	7.5
Worcester	13.8	....	4.0	8.0
Hartford, Conn.	13.1	....	4.0	7.5
New Haven	13.0	....	4.0	8.0
Providence, R.I.	11.8	....	3.0	7.5

Price basis to undivided dealers—Dealer tank-wagon less .5 cent per gallon.

Consuming accounts not under contract—when made by tank-wagon in quantities of 50 gallons or over, tank-wagon dealer price.

Commercial accounts under contract—annual consumption 2,500 to 100,000 gallons per year, 1 cent above posted tankcar price; over 100,000 gallons per year, .5 cent above posted tankcar price.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank-wag.
Omaha	18.1	16.6	6.0	10.1
McCook	18.8	17.3	6.0	10.8
Norfolk	18.5	17.0	6.0	10.5
North Platte	18 9	17.4	6.0	10.9
Scotts Bluff	19.6	18.1	6.0	10.6

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
N. Orleans, La.	19.5	23.0	*10.0	†13.0
Baton Rouge	17.5	21.0	8.0	12.0
Alexandria	18.0	....	8.0	12.0
Lafayette	18.5	....	8.0	12.5
Lake Charles	18.5	....	8.0	12.0
Shreveport	17.0	....	8.0	11.0
Knoxville, Tenn.	20.5	....	8.0	14.0
Memphis	18.5	....	8.0	12.0
Chattanooga	20.0	....	8.0	13 5
Nashville	19.5	....	8.0	13.0
Bristol	19.25	....	8.0	14.5

*Includes 2-cent parish tax. †Includes 1 cent parish tax and 1 cent state tax.

Price basis to commercial consumers: effective Dec. 21, 1936, deliveries of 50 gallons or more in one delivery, posted consumer tankcar price plus 2 cents per gallon; consumers taking deliveries of less than 50 gallons at one time pay posted consumer tankcar price plus 6 cents per gallon.

Louisiana kerosene prices include 1-cent state tax.

Naphtha

STANDARD OIL CO (INDIANA)

	Tank-wagon
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 100 gallon lots if covered by contract.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline			Kero.
	Dealer	Serv. sta.	Inc. tax	tank-wag.
Muskogee, Ok.	15.0	....	5.0	7.5
Okla. City	15.0	....	5.0	8.0
Tulsa	15.0	....	5.0	8.0
Ft. Smith, Ark.	14.5	....	5.0	8.0
Little Rock	17.0	....	7.5	9.5
Texarkana	14.5	....	5.0	8.5

Texas

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
Dallas, Tex.	13.5	17.0	5.0	7.5
Fort Worth	13.5	17.0	5.0	8.5
Houston	14.0	18.0	5.0	7.5
San Antonio	14.0	18.0	5.0	7.5

Tank-wagon price is to contract dealers and commercial consumers, the price to open dealers being .5 cent above tank-wagon price.

Canada*

3 Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
Hamilton, Ont.	21.0	....	6.0	17.0
Toronto, Ont.	21.0	23.5	6.0	17.0
Brandon, Man.	29.8	32.8	7.0	23.1
Winnipeg, Man.	28.2	31.2	7.0	20.7
Regina, Sask.	29.5	....	7.0	23.0
Saskatoon, Sask.	32.3	....	7.0	24.5
Edmonton, Alta.	30.5	33.5	7.0	24.3
Calgary, Alta.	28.0	31.0	7.0	21.5
Vancouver, B. C.	22.0	26.0	7.0	23.0
Montreal, Que.	18.5	....	6.0	17.1
St. John, N. B.	24.0	28.0	8.0	23.1
Halifax, N. S.	24.0	28.0	8.0	23.1

*Imperial gallon used in Canada.

Discount to dealers: Divided dealers pay 3 cents per gallon below station price; undivided dealers pay 4 cents per gallon below station price except in cities of Hamilton, Toronto and Montreal when discounts below station prices are one-half cent per gallon less and in Vancouver where discounts are 1 cent per gallon more.

Retail Price Changes

Standard Oil Co. (Indiana) January 22 advanced tank-wagon kerosene .3 cent at all points in Illinois, Iowa, Minnesota, Wisconsin, Michigan, Indiana, North and South Dakota, Missouri and Kansas.

Standard Oil Co. of Nebraska January 22 advanced tank-wagon kerosene .3 cent at all Nebraska points.

Atlantic Refining Co. December 29 advanced dealer tank-wagon gasoline .3 cent at Springfield, Worcester and Providence and .2 cent in Hartford and New Haven; January 7 advanced tank-wagon kerosene .5 cent at all points in Pennsylvania, Delaware, Massachusetts, Connecticut and Rhode Island.

East Texas Directory

The Wimberly Report Service, Fort Worth, Tex., headed by G. E. Wimberly, has just published a 1937 directory of the East Texas Field ($2). The directory includes companies and producers operating in the field, number of wells and leases, home and field offices and field superintendents, with a map showing railroads, highways, refineries, pipe lines and pump stations, etc.

PRICES OF REFINED PRODUCTS

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of January 26, 1937

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 octane and below (3d gr.)	.04½	.04⅝
63-67 octane	.05	.05⅛
68-70 octane (regular)	.05⅝	.05⅞
60-62 400 grades:		
62 octane and below (3d gr.)	.04½	.04⅝
63-67 octane	.05	.05⅛
68-70 octane (regular)	.05⅝	.05⅞
64-66 375	.05	.05⅛
68-70 360	.05⅛	.05¼

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.04½	.04⅝
63-67 octane	.05	.05⅛
68-70 octane (regular)	.05⅛	.05¾
60-62 400	.04⅝	.04¾
64-66 375	.04¾	.05

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U. S. Motor grades:		
62 octane and below	.05⅛	.05⅜
63-67 octane	.06¼	.06½
68-70 octane (regular)	.06½	.06⅝

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:		
62 octane and below	.05⅛	.05⅜
63-67 octane	.06¼	.06½
68-70 octane (regular)	.06½	.06⅝

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.04½	.04⅝
63-67 octane	.05	.05⅛
68-70 octane (regular)	.05⅝	.05⅞
60-62 400 grades:		
62 octane and below	.04½	.04⅝
63-67 octane	.05	.05⅛
68-70 octane (regular)	.05⅝	.05⅞
64-66 375	.04⅞	.05⅛
68-70 360	.05⅛	.05¼

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor:		
Below 60 octane		.05¼
60-64.9 octane	.06¾	.07
65-70 octane	.07	.07¼
64-66 375		.05½
68-70 350		.05¾

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.07	.08
58-60 400, 65 octane and higher	.07⅝	.08¾

EAST COAST (domestic)—

U. S. Motor below 60 octane:		
*New York (Bayonne)		.06¼
Baltimore		.06¼
U. S. Motor, 60-64.9 octane:		
*New York (Bayonne)		.06½
Philadelphia	.06½	.06⅝
Boston		.06⅝
Baltimore	.06½	.06⅜
Charleston, S. C.		.06⅝
U. S. Motor, 65 and above:		
*New York (Bayonne)		.06⅝
Philadelphia	.06¾	.07
Boston		.07
Baltimore	.06¾	.07
Charleston, S. C.		.07

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane	.05⅝	.05½
60-64.9	.05⅝	.05¾
65 octane and higher	.05⅞	.06

Naphtha

PENNSYLVANIA (inland refineries)—

50-52 450 (blending)	.05⅛
52-54 450 (blending)	.05⅛
54-56 450 (blending)	.05⅛

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.03¼
Grade 18-55	.03⅜	.04
Low vapor pressure grade:		
*14-pound v.p. (max.)		.04½
*12-pound v.p. (max.)	.04⅝	.05

*Nominal.

NORTH TEXAS—

Grade 26-70	.03
Grade 18-55	.03⅝

CALIFORNIA—

75-85 375-390	.07	.07½

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70	.03⅝

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110 flash, 540-550 e.p.	.04	.04⅛
41-43 gr., 300-350 l.b.p., 110-125 flash, 500-520 e.p.	.04⅛	.04¼
40-48 gr., 210-230 l.b.p., 480 max. e.p.		.04½

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04	.04⅛
42-44	.04⅛	.04¼

NORTH TEXAS—

41-43	.04	.04⅛

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43		.04¼

ARKANSAS (Ark., N. La., Miss. del.)—

41-43		.05

PENNSYLVANIA (inland refineries)—

45		.05½
46		.05¼
47		.05⅝

CHICAGO (Based on Group 3)—

41-43	.04	.04⅛
42-44	.04⅛	.04¼

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.03¾	.05

NEW YORK (Bayonne, N. J.)—

41-43		.05¾

***GULF COAST (domestic)—**

41-43		.05½

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

No. 1 prime white, 38-42	.03⅞	.04
No. 1 straw, 38-40	.03¾	.03⅞
No. 2 straw, 32-36	.03⅜	.03¾
No. 2 dark, 32-36	.03½	.03⅝
No. 3, zero to 15, 28-32	.03⅜	.03½
No. 3, 15 and above, 28-32	.02⅞	.03

NORTH TEXAS—

No. 1 prime white, 38-42		.03¾
No. 1 straw, 38-40	.03⅝	.03¾

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03½	.03⅝

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36		.03¾
No. 3, 28-32		.03½

CHICAGO (Based on Group 3)—

No. 1 prime white, 38-40	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾
No. 2 straw, 32-36	.03½	.03¾
No. 2 dark, 32-36	.03⅝	.03⅝
No. 3, zero to 15, 28-32	.03⅝	.03⅝
No. 3, 15 and above, 28-32	.02⅝	.02¾

NEW YORK (Bayonne, N. J.)—

*No. 1		.05¾
*No. 2		.05
*No. 4		.04¾

*Barge deliveries one-eighth to one-fourth cent under above, tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02⅞	.03
No. 4, low cold test, 24-28	1.00	1.05
No. 4, 15 and above, 24-28	.80	.85
No. 5, low cold test, 18-22	.77½	.80
Below 18 fuel oil, industrial	.70	.75

NORTH TEXAS—

U.G.I. gas oil	.02¾	.02⅞
No. 4, low cold test, 24-28	.95	1.05
No. 5, low cold test, 18-22	.75	.80
Below 18 fuel oil, industrial	.65	.75

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U.G.I. gas oil	.02⅝	.02¾
10-14 fuel oil, industrial	.70	.75

ARKANSAS (Ark., N. La., Miss. del.)—

10-14 fuel oil, industrial	.60	.65

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02¾
No. 4, low cold test, 24-28	1.00	1.05
No. 4, 15 and above, 24-28	.80	.85
No. 5, low cold test, 18-22	.77½	.80
No. 6, low cold test, 10-16	.65	.70

PENNSYLVANIA (inland refineries)—

36-40	.04⅜	.04⅛

CALIFORNIA—

Los Angeles:

30-34 gas oil, per bbl.	1.00	1.25
24 plus diesel	1.00	1.25
24 plus diesel (bunkers)	1.05	1.35
12-16 (bunkers at tidewater)	.85	.95
10-16 (cargo lots)	.75	.95
12-17 (tankcars)	.75	.95
San Joaquin Valley:		
10-18 (tankcars)	.70	.80
24 plus diesel per bbl.	.95	1.35
San Francisco:		
27 plus diesel		1.40
24 plus diesel (bunkers)		1.40
10-16 (bunkers)		1.00

GULF COAST—

28-30 gas oil	.03½	.03⅝
28-30 diesel (bunkers)		1.65
Bunkers (bulk cargoes)		.95
Bunker C (bunkers)		.95

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04¾
28-30 diesel (lighterage 6¼c per bbl.)		1.85
28-30 diesel (tankcars)		.04¾
*Bunker C (to ocean-going ships in N. Y. harbor)		1.15
Industrial fuel (tankcars)		.04½

*Lighterage charge 5c bbl. additional.

Bright and Steam-Refined

OKLAHOMA (Group 3)—

Bright Stocks:		
190-200 D, 15-25		.21
150-160 D, 0-10		.18
150-160 D, 15-25		.17½
150-160 E, 15-25		.17
100-110 D, 0-10		.16
Steam refined:		
631 green (treated)		.14
600 dark green (untreated)		.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 145-50 at 210, 540-550 flash):

10 pour test	.25	.25½
15 pour test	.24	.24½
20 pour test	.23	.23½
25 pour test	.22	.22½
Steam refined:		
600	.14	.14½
650	.15½	.16
600 Pensylvania flash	.16½	.17
630 flash	.17½	.18
600 Warren E filtered	.17	.17½

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:

150-3		.08½
180-3		.09½
180-4		.09
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12
280-4		.11½
300-3½		.12½
400-3½		.13½
100-2½ paraffin oil		.05¾
15-20 Cold Test:		
200-3		.09½
200-4		.09
250-3		.10½
250-4		.10
280-3		.11½
280-4		.11

GULF COAST—

Pale Oils:

200-3	.06½	.07
300-3	.07	.07½
500-3½	.08	.08½
750-3½	.08½	.09
1,200-3½	.09¼	.09½
2,000-4	.09½	.10
Red Oils:		
200-5-6	.06¾	.07
300-5-6	.07	.07½
500-5-6	.08	.08½
750	.08½	.09
1,200-5-6	.09	.09½

CALIFORNIA (moving to dom. market)

Pale Oils:

100-2½-3	.07	.08
200-2½-3	.07	.08
300-2½-3	.07	.08
400-3-4	.09	.11
450-3-4	.09	.11
550-3-4	.09	.11
600-3-4	.09	.11
Red Oils:		
200-4-5	.07	.08
300-5-6	.07	.08
350-5-6	.10½	.11½
400-5-6	.10½	.11½
450-5-6	.10½	.11½
500-5-6	.10½	.11½
600-5-6½	.10½	.11½
700-6½ plus	.10½	.11½
750-6½ plus	.10½	.11½
900-6½ plus	.10½	.11½

PENNSYLVANIA—

150 vis. at 750° F. color, 400-405 flash:		
Zero pour test	.22	.22½
10 pour test	.21	.21½
15 pour test	.20½	.21
25 pour test	.19½	.20
180 vis. at 70° F., 3 color:		
25 pour test	.22	.22½
200 vis. at 70° F., 3 color:		
Zero pour test	.25½	.26
10 pour test	.24½	.25
15 pour test	.24	.24½
25 pour test	.23	.23½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.02⅝	.02¾

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0255	.0260
124-126 (a.m.p.) w.c. scale	.0260	.0265

NEW YORK—

Wax in bags fully refined:

122-125 (a.m.p.) wax		.0445
125-127 (a.m.p) wax		.0455
128-130 (a.m.p.) wax		.0480
130-132 (a.m.p.) wax		.0505
133-135 (a.m.p.) wax		.0535
135-137 (a.m.p.) wax		.0560
124-126 (a.m.p.) w.s.	.0240	.0250
124-126 (a.m.p.) y.s.	.0240	.0245
Petrolatum in barrels, carload lots:		
Dark green		.01⅞
Amber	.02⅞	.03
Extra amber	.03	.03⅛
Lily white	.06⅝	.06¾
Snow white	.07¾	.07⅞
Cream	.05⅝	.05¾

Export Prices

GASOLINE

GULF COAST—

U .S. Motor		.05¼
60-62 400		.05⅜
61-63 390	.05⅜	.05½
64-66 375		.05⅝

LOS ANGELES—

U. S. Motor grades:

53-55 octane		.04¾
55-65 octane	.04¾	.05
65-67 octane		.05
67-69 octane		.05¼
Above 69 octane	.05½	.06

KEROSENE

GULF COAST—

41-43 prime white		.04¾
41-43 water white		.04½
44 water white		.05

LOS ANGELES—

41-43 water white	.04½	.05

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s. in bbls.)—

Cylinder Stocks:

600 Warren E	.23
600 S.R. unfiltered	.20½
650 S.R. unfiltered	.22
600 flash S.R.	.23
630 flash S.R.	.24½
Bright Stocks:	
8 color	.29½
6½ plus color in dilution	.28

NEUTRAL OIL

200-3 color	.28½
150-3 color	.25½

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 a.m.p.	.04125
125-127 a.m.p.	.0425
128-130 a.m.p.	.0450
133-135 a.m.p.	.0525
135-137 a.m.p.	.0550
Crude scale:	
124-126 w.s.	.0260 .0270
124-126 y.s.	.0245 .0250

CRUDE OIL PRICES

Oklahoma, Kansas, North Central and East Central Texas

(January 9, 1936)

East Texas*	$1.15
Van, Tex.†	1.02
Talco (Nov. 1, 1936)	.65
Altus and Tipton, Okla.‡	1.08
Other fields (see gravity table).	

*All companies. †Pure Oil Co. ‡Gulf Oil Corp. Talco by Humble Oil & Refining Co.

West Texas

Crane, Upton, Howard, Glasscock and Mitchell counties	$ .80
Winkler County	.85
Lea County, N. Mex.	.85
Pecos County*	.85
Pecos shallow†	.75

*Shell Petroleum Co., Gulf Pipe Line Co., and Humble Oil & Refining Co. †Shell Petroleum Corp.

Note—For Humble, Magnolia and Texas Co.'s West Texas and Lea County prices see gravity table. Above prices are those of other buyers.

Gulf Coast

(January 9, 1936)

Cleveland, Tex.	$1.10
Hardin, Tex.	1.03
Greta, Tex. (Nov. 1, 1936)	.95
Refugio, Tex., heavy (Nov. 1, 1936).	.95
Tomball, Tex.	1.30
Lafitte, La.	1.12
Livingston, Tex.	1.15
Bosco, La. (Jan. 16, 1936)	1.05
Evangeline, La.	1.07
O'Connor (Nov. 1, 1936)	.95
McFaddin (Nov. 1, 1936)	.95
Satsuma (Nov. 1, 1936)	1.15
Heyser, light (Nov. 1, 1936)	1.15
Heyser, heavy (Nov. 1, 1936)	.90
Placedo (Nov. 1, 1936)	.90
Plymouth (Nov. 1, 1936) ...See gravity table for Gulf Coast pools	
Welsh, La.	.96
Tepatate (La.) (Jan. 4, 1937)	1.12

Rocky Mountain States

(Effective January 9, 1936)

Iles, Colo., light*	$1.06
Iles, Colo., heavy*	1.00
Greybull, Wyo.*	1.28
Torchlight, Wyo.*	1.28
Grass Creek, Wyo., light*†	1.18
Grass Creek, Wyo., heavy (Nov. 4, 1936)*†	.62
Hamilton Dome, Wyo. (Nov. 4, 1936)*	.57
Elk Basin, Wyo., light *†	1.18
Frannie, Wyo., heavy*	.62
Frannie, Wyo., light (Nov. 4, 1936)	.70
Hogback, N. Mex.*	1.21
Pondera, Mont. (Jan. 26, 1936)*	1.05
Salt Creek, Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†	1.11
Big Muddy, Wyo. (Jan. 4, 1937)‡	1.23
Rock Creek, Wyo. (Nov. 1, 1936)†	1.08¼
Artesia, N. Mex. (Jan. 4, 1937)‡	.97
Maljamar, N. Mex. (Jan. 9, 1936)‡	.80
Fort Collins and Wellington, Colo. (Jan. 9, 1936)‡	See Note
Florence, Colo.	.98
Lance Creek, Wyo.	.85
Lance Creek, Wyo. (Jan. 4, 1937)‡	1.02
Lost Soldier, Wyo. (Sept. 30, 1933)	.88
Hudson, Wyo. (June 2, 1931)	.65
Sunburst, Mont. (June 5, 1936)	1.15
Cat Creek, Mont. (Jan. 4, 1937)‡	1.45
Cut Bank, Mont.	1.35

*Stanolind Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co. Cut Bank by Toronto Pipe Line Co.

Middle Western States

OHIO OIL CO.

Lima (Sept. 22, 1936)	$1.15
Illinois (Jan. 9, 1936)	1.23
Princeton, Ind. (Jan. 9, 1936)*	1.23
Midland, Mich. (Sept. 16, 1936)*	1.32
Midland, Mich. (Sept. 28, 1936)†	1.37
West Branch, Mich. (Sept. 16, 1936)	1.16
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River (Jan. 9, 1936)	1.30
Kentucky River (Jan. 9, 1936)	1.38
Western Kentucky (Nov. 1, 1936)	1.28

*Posted by Simrall Corp. and Pure Oil Co. and includes Greendale, Porter, Beaverton and Crystal crudes. West Branch, Mich., by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. †Old Dutch Refining Co.

Southwest Texas

(January 9, 1936)

Saxet (Nov. 1, 1936)	.95
Mirando (Nov. 1, 1936)	.90
Pettus	1.25
Taft (Nov. 1, 1936)	.95
Salt Flat*	.97
Salt Flat‡	.97
Darst Creek*	.97
Darst Creek†	.97
Luling	.90
Lytton Springs	1.00
Duval County	.85
Flour Bluff (Nov. 1, 1936). See gravity table	

*Humble Oil & Refining Co. †Magnolia Petroleum Co., Gulf Pipe Line Co. and Texas Co. ‡Shell Petroleum Corp. Saxet posted by Humble and Texas; Mirando by Humble and Magnolia; Pettus by Humble; Salt Flat by Humble; Luling and Lytton Springs by Magnolia; Duval by Texas Co.

North Louisiana and Arkansas

Smackover, all grades (Jan. 10, 1936)*	$ .75
Smackover, all grades (Jan. 9, 1936)†	.80
Tullos and Urania (Jan. 10, 1936)	.97
Nevada, Ark. (Jan. 10, 1936)	.65
El Dorado East field (Jan. 16, 1936)	.75
Converse, Holly, Pleasant Hill and Zwolle (Jan. 10, 1936)*	1.10
Lisbon, Ark. (Jan. 10, 1936)*	1.10
Elm Grove, La. (Jan. 10, 1936)	.80

*Standard Oil Co. of Louisiana, Gulf Refining Co., Louisiana Oil Refining Co., Texas Co. (effective January 14) and Magnolia Petroleum Co. (effective January 16). Urania by H. L. Hunt Co. and Louisiana Oil Refining Co. Nevada by Standard of Louisiana. El Dorado East field by Magnolia Petroleum Co. Phillips Petroleum Co. (effective January 17), posts 75 cents for all grades in Union and Ouachita counties, Arkansas.

Eastern States

TIDE WATER PIPE LINE CO.

(Effective Dec. 28, 1936)

Bradford, Pa.	$2.57
Allegany, N. Y.	2.57

SOUTH PENN OIL CO.

(Effective Dec. 28, 1936)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	2.57
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.33
Pennsylvania Grade Oil in Eureka Pipe Line lines	2.27
Pennsylvania Grade Oil in Buckeye Pipe Line lines	2.13
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Sept. 18, 1936)	1.93

PENNZOIL CO.

(Effective Dec. 28, 1936)

Pennsylvania Grade Oil in National Transit Lines:	
Group A — Includes Cochran, Franklin, Hamilton and Doolittle districts.	2.37
Group B — Includes Tidioute district.	2.16
Group C — Includes Turkey and Tidioute districts.	2.16
Group D — Includes Bear Creek and Porkey districts.	2.54
Group E — Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacey and Kinzua districts.	2.51
Price depends on lengths of pipe line haul to plant at Oil City.	

PURE OIL CO.

(Effective Dec. 28, 1936)

Cabin Creek, W. Va.	2.27
Bradford Hollow, W. Va.	2.27
Kelly Creek, W. Va.	2.27

Canada

Ontario (Sept. 9, 1933):*	
Petrolia	$2.10
Oil Springs	2.17
Turner Valley, Alberta province (Dec. 16, 1936):†	
Clear naphtha	$2.60
Discolored naphtha, 65 gravity and and higher	2.36
Discolored naphtha and crude oil, 40-40.9 gravity	1.55
Increasing 3 cents for each degree of gravity with top price for 64-64.9 gravity	2.27

These prices delivered field tankage.

*Imperial Oil, Ltd.

†Imperial Oil, Ltd., and Regal Oil & Refining Co. On crude oil alone British American Oil Co. posted above prices on December 9, 1936.

Mexico

Panuco*	$0.96

*F.o.b. ship, based on November transactions and exclusive of production and export taxes and bar dues.

Crude Prices by Gravities

Gravity—	Oklahoma, Kansas and Salt Creek, Wyo.	Central and North Texas	East Central Texas	North Louisiana, Arkansas	Gray County, Texas	Carson and Hutchinson Counties, Texas	Conroe, Texas	West Texas and Lea County, New Mexico	Gulf Coast, Texas and Louisiana	Flour Bluff, Turtle Bay Anahuac Dickinson, Texas	Iowa and Cameron Meadows, Texas
Below 20	....	....	....	....	....	....	....	....	$.92	....	$.82
20-20.9	....	....	....	....	....	....	....	....	.94	....	.84
21-21.9	....	....	....	....	....	....	....	....	.96	....	.86
22-22.9	....	....	....	....	....	....	....	....	.98	....	.88
23-23.9	....	....	....	....	....	....	....	....	1.00	....	.90
24-24.9	....	....	....	....	....	....	....	....	1.02	....	.92
Below 25	$.86	....	....	$.78	....	....	....	....	....	....	....
25-25.9	.88	....	....	.80	....	....	....	....	1.04	....	.94
26-26.9	.90	....	....	.82	....	....	....	....	1.06	....	.96
27-27.9	.92	....	....	.84	....	....	....	....	1.08	....	.98
28-28.9	.94	....	....	.86	....	....	....	....	1.10	....	1.00
Below 29	.94	$.84	$.91	....	....	....	....	$.75	....	....	....
29-29.9	.96	.86	.93	.88	....	....	....	.76	1.12	....	1.02
30-30.9	.98	.88	.95	.90	....	....	....	.78	1.14	$1.04	1.04
31-31.9	1.00	.90	.97	.92	....	....	....	.80	1.16	1.06	1.06
32-32.9	1.02	.92	.99	.94	....	....	....	.82	1.18	1.08	1.08
33-33.9	1.04	.94	1.01	.96	....	....	....	.84	1.20	1.10	1.10
34-34.9	1.06	.96	1.03	.98	....	....	....	.86	1.22	1.12	1.12
Below 35	....	....	....	....	$.86	$.81	....	....	....	....	....
35-35.9	1.08	.98	1.05	1.00	.88	.83	$1.24	.88	1.22	1.14	1.12
36-36.9	1.10	1.00	1.07	1.02	.90	.85	1.26	.90	1.22	1.16	1.12
37-37.9	1.12	1.02	1.09	1.04	.92	.87	1.28	.90	1.22	1.18	1.12
38-38.9	1.14	1.04	1.11	1.06	.94	.89	1.30	.90	1.22	1.20	1.12
39-39.9	1.16	1.06	1.13	1.08	.96	.91	1.32	.90	1.22	1.22	1.12
40 and over	1.18	1.08	1.15	1.10	.98	.93	1.34	.90	1.22	1.24	1.12

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.

Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Elwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Santa Paula*	Orcutt*
14-14.9	$.80	$.79	$.74	$.76	$.76	$.80	$.76	....	....	....	$.80	$.76	$.76	$.77	$.78	....	....	$.70	$.70	$.70	....	....	$.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	....	.80	.76	.74	.77	.78	....	....	.70	.70	.70	....	....	.71	.70
18-18.9	.80	.79	.74	.78	.81	.80	.78	....	....	....	.82	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.73	.73
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	....	.85	.76	.78	.77	.78	....	$.70	.74	.74	.71	$.70	....	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	....	.88	.78	.92	.77	.80	....	.70	.78	.78	.72	.70	....	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	....	.91	.80	.85	.77	.84	$.78	.78	.82	.82	.74	.70	....	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	....	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	....	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	....	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	....	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	....	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	....	.87	.89
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	....	1.02	.95	....	.89	.99	.86	.88	1.01	.98	.90	.83	....	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	....	1.05	.98	....	.92	1.03	.90	.91	1.06	1.02	....	....	....	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	....	1.02	....	.96	1.06	.95	.95	1.10	1.06	....	....	....	.95	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	....	1.06	....	.99	1.10	.99	.99	1.15	1.10	....	....	....	.97	....
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	....	....	1.09	....	1.03	1.14	1.03	1.02	1.20	1.14	....	....	....	.99	....
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	....	....	....	1.07	1.17	1.03	1.06	1.25	1.18	....	....	....	1.01	....
31-31.9	....	....	....	....	1.24	Pipe	1.24	1.22	.97	Ship	....	....	....	1.11	1.21	1.13	1.09	1.29	....	....	....	....	....	....
32-32.9	....	....	....	....	1.27	Line	1.27	1.27	1.00	....	....	....	....	1.14	1.25	1.16	1.13	1.34	....	....	....	....	....	....
33-33.9	....	....	....	....	....	....	....	1.32	....	$1.28	....	....	....	1.18	1.28	1.20	1.17	1.38	....	....	....	$1.19	....	....
34-34.9	....	....	....	....	....	....	....	1.37	....	1.32	....	....	....	1.22	1.32	1.25	1.20	....	....	....	....	1.23	....	....
35-35.9	....	....	....	....	....	....	....	1.42	....	1.35	....	....	....	1.25	....	1.29	....	....	....	....	....	1.27	....	....
36-36.9	....	....	....	....	....	....	....	1.46	....	1.39	....	....	....	1.29	....	1.33	....	....	....	....	....	1.31	....	....
37-37.9	....	....	....	....	....	....	....	1.51	....	1.43	....	....	....	1.32	....	1.37	....	....	....	....	....	1.35	....	....
38-38.9	....	....	....	....	....	....	....	1.56	....	....	....	....	....	1.36	....	1.42	....	....	....	....	....	1.39	....	....
39-39.9	....	....	....	....	....	....	....	1.61	....	....	....	....	....	1.40	....	....	....	....	....	....	....	1.43	....	....
40-40.9	....	....	....	....	....	....	....	1.66	....	....	....	....	....	1.43	....	....	....	....	....	....	....	....	....	....

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over.

MARKET RECORD, ACTIVE OIL STOCKS

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1936 High	1936 Low	Week ended Jan. 23 Sales	Week ended Jan. 23 High	Week ended Jan. 23 Low	Week ended Jan. 23 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1935 High	1935 Low	1934 High	1934 Low
125½	75	7,300	109¼	103	109¼	Amerada Corp.	788,675	N.P.	50cQ	1-30-37	$2.00	80	48½	55⅝	39
35¾	26⅝	50,400	35¾	31¾	35⅝	Atlantic Refining	2,664,904	$25	50cQ¶	12-15-36	1.25	28	20½	35¼	21½
40⅜	21	16,100	39⅜	37	38½	Barber Co.	387,149	$10	50c	12-10-36	.50	22½	11¾	23½	12
34½	14⅛	89,500	34½	29⅞	34½	Barnsdall Oil Co.	2,131,090	$5	25cQ	2-1-37	.80	14¾	5⅞	10	5⅞
23⅜	14	92,600	20⅛	18⅝	18¾	Columbia Gas & Elec.	11,610,036	N.P.	20c	11-16-36	.40	15¾	3⅜	19¼	6⅝
17¼	11½	92,700	16¾	16	16½	Consolidated Oil Corp.	13,983,287	N.P.	20cQ	2-15-37	.80	12¼	6½	14¼	7¼
45¼	28⅛	24,000	44¼	43¼	44¼	Continental Oil of Delaware	4,682,671	$5	25cQ	3-29-37	1.50	35	15⅛	22⅜	15¾
17⅝	6⅜	119,000	17⅝	15½	16⅞	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	7	1½	5⅝	2½
31⅝	17¼	13,600	31¼	30	31¼	Mid-Continent Petroleum	1,843,872	$10	75cSA	12-1-36	1.15	20½	9½	14¾	9⅛
29⅞	16¾	3,900	28⅝	27¼	28⅝	Mission Corporation	1,399,345	N.P.	....	.....	.45	17¾	10⅝	..	..
75½	19⅞	4,700	67	63	65½	National Supply of Delaware	382,591	$25	....	5-15-31	....	20⅞	9	21⅛	10
19½	12⅛	64,100	19¼	18⅜	19⅛	Ohio Oil Co.	6,563,377	N.P.	35cSA	12-15-36	.60	14¼	9¼	15⅞	8½
26⅜	11¾	2,700	25¼	23¾	25¼	Pacific Western Oil	1,000,000	N.P.	65c	12-18-36	.65	14	6¾	9⅝	5½
4⅜	1⅜	30,900	4⅜	3⅜	3⅞	Panhandle P. & R.	198,770	N.P.	....	.....	....	1⅞	½	2½	⅝
52½	38⅛	18,000	52½	50⅝	52⅛	Phillips Petroleum	4,152,836	N.P.	$1Q¶	12-1-36	2.50	40	13¾	20¾	13⅜
27⅜	11⅞	11,500	25¾	24⅝	25⅜	Plymouth Oil Co.	1,050,000	$5	40c	12-22-36	.90	13	6½	16¾	7¼
24⅞	16	100,400	22⅞	20⅞	22⅞	Pure Oil Co.	3,038,370	N.P.	....	9-1-30	....	17	5⅞	14⅞	6⅛
46½	30½	20,000	46½	42⅝	46⅛	Seaboard Oil of Delaware	1,244,283	N.P.	25cQ	12-15-36	1.00	36⅞	20¾	33⅜	20¾
29¾	14¾	9,000	29	27⅞	28⅜	Shell Union Oil	13,070,625	N.P.	25c	12-15-36	.25	16½	5½	11½	6
127½	102	3,300	104¾	103¼	104¾	Shell Union Oil 5½% pfd.	400,000	$100	26⅛c	12-15-36	28.87½	111	63⅛	89	57
6¾	3½	6,700	4⅛	4	4	Simms Petroleum	461,698	$10	50c liq.	1-9-37	2.25 liq.	18¾	4¾	17⅛	7¼
47⅜	19½	5,700	46⅜	45⅛	45⅞	Skelly Oil	1,008,514	$15	....	12-15-30	....	20½	6½	11½	6
17½	12½	148,100	17¼	16½	17¼	Socony-Vacuum	31,151,075	$15	25cSpl.	12-15-36	.70	15¾	10⅝	19⅞	12½
47⅝	35	31,200	46¼	45¼	46⅛	Standard Oil of California	13,014,754	N.P.	30cQ¶	12-15-36	1.20	41⅛	27¾	42⅞	26½
48½	32¾	17,100	48¼	47⅝	48	Standard Oil (Indiana)	15,215,677	$25	$1.25Q¶	12-15-36	2.40	33⅜	23	32¾	23¼
31½	25	300	31½	31⅜	31½	Standard Oil of Kansas	200,000	$10	$1	12-26-36	1.00	32	20	41	26
71	51⅛	56,200	71	68⅝	71	Standard Oil of New Jersey	25,856,081	$25	$1.25SA¶	12-15-36	2.00	52⅜	35¾	50⅛	39¼
91	70	700	76¼	75⅛	74½	Sun Oil	1,733,013	N.P.	25cQ	3-15-37	$1 & 6% Stk.	77	60½	74¼	51½
55⅜	28⅞	44,100	52½	50⅜	51⅞	Texas Corp.	9,340,069	$25	25cQ	1-1-37	1.50	30¼	16½	29⅜	19⅝
9¼	4⅜	109,400	9¼	7⅞	8⅞	Texas Gulf Producing Co.	888,102	N.P.	5c	12-15-36	.05	4¾	2½	7	3⅜
16⅝	7½	58,600	16⅝	14⅞	16¼	Texas Pacific Coal & Oil	880,703	$10	25c	8-1-36	.25	9¼	3¼	6½	2½
21¾	14¾	14,700	21	20⅛	20⅝	Tide Water Associated	5,642,342	N.P.	15cQ	12-1-36	.70	15⅞	7⅝	14⅜	8
108	100⅝	11,100	107⅜	106⅛	106⅜	Tide Water Associated pfd.	626,221	$100	$1.50Q	1-2-37	6.00	104½	84	87	64½
28½	20¾	37,300	26⅜	25⅝	25⅞	Union Oil of California	4,386,070	$25	25cQ	11-10-36	1.00	24	14¾	20½	11½
31⅝	22⅝	3,900	29⅛	27⅝	28	Union Tank Car Co.	1,200,000	N.P.	30cQ	12-1-36	1.20	26½	20⅞	25⅜	15⅝
6	2¾	31,600	6	4¾	5¾	Wilcox Oil & Gas	424,839	$5	....	5-10-28	....	3⅛	1	5¾	2

*Ex-dividend. †Plus extras ‡Also 50 per cent in stock of Barnsdall Ref. §Partly on account of accumulation. ‖Dividend 4/75 Mission Corp. paid 3-15-35. ¶Includes extras. **Plus 6% stock.

New York Curb Exchange

1936 High	1936 Low	Week ended Jan. 23 Sales	Week ended Jan. 23 High	Week ended Jan. 23 Low	Week ended Jan. 23 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1935 High	1935 Low	1934 High	1934 Low
21⅝	13¼	10,900	21⅜	19¼	21	Bridgeport Machine Co.	260,000	N.P.	$1	12-21-36	$1.00	14⅛	3¾	3¾	½
50	39¾	100	48	47½	47½	Buckeye Pipe Line Co.	200,000	$50	$1Q	12-15-36	3.25	42½	30½	38	26
4⅞	1⅞	16,000	2¾	2¼	2⅝	Carib Syndicate	799,020	25c	....	.....	....	4¼	1⅝	5½	1½
124¾	105	No sales	..	..	..	Chesebrough Mfg. Co.	120,000	$25	$2.50Q†	12-21-36	7.00	157	115	150	116
7⅜	3	145,600	5⅜	4¾	4¾	Cities Service	37,804,394	N.P.	....	6-1-32	....	3¼	¾	4¼	1¼
4⅜	1½	45,000	4⅛	3⅜	3⅝	Cosden Oil	399,687	$1	....	.....	....	1½	¼	3⅞	½
39	19⅞	12,600	37⅜	34½	37	Creole Petroleum	6,974,356	$5	25cSA	12-15-36	.50	23¾	10	14⅜	9⅝
18¼	9	6,800	18¼	16⅛	18	Darby Petroleum	351,390	$5	25cSA	1-15-37	.50	8⅞	4	7½	4⅛
7⅞	1⅞	2,800	7¼	6⅝	7	Derby Oil & Refining	263,162	N.P.	....	.....	....	2	⅜	2¼	1
47½	38½	100	47¼	46½	46½	Eureka Pipe Line	50,000	$50	$1Q	11-2-36	4.00	38	33¼	37	30
62⅞	54	19,100	62⅜	59½	62	Gulf Oil Corp.	9,076,202	$25	75c†	12-10-36	1.50, 100% Stk.	74¾	50¼	76¾	49¾
83	57	5,000	84	81¾	84	Humble Oil & Refining	8,923,935	N.P.	50c†	12-26-36	1.50	64	44	49½	33¼
24½	19¾	7,100	21⅞	21¾	21¾	Imperial Oil of Canada	26,919,871	N.P.	62½cSA†‡	12-1-36	1.25	22½	15⅜	17⅞	12⅝
9⅞	5½	4,400	9⅞	9⅛	9¾	Indiana Pipe Line	300,000	$10	20c Spl.	12-17-36	.80	6⅛	3⅝	6⅞	3⅝
39⅝	32⅜	6,500	35⅞	35	35¼	International Petroleum	14,247,088	N.P.	$1.25†‡	12-1-36	2.50	39¾	28	33⅜	19⅝
15⅜	9⅞	25,500	14⅞	13⅝	14⅞	Louisiana Land & Exp.	3,000,000	N.P.	20cQ†	12-15-36	.50	11⅜	4⅜	5	2⅛
19½	7⅜	7,200	19⅜	18⅛	18½	Lion Oil Refining	270,000	N.P.	25cQ	12-26-36	.75	8⅛	3½	6	3⅜
14¼	9⅞	7,600	14⅛	13¼	14	Lone Star Gas	5,382,723	N.P.	20c	12-24-36	.60	10⅞	4½	8⅜	4¼
8⅜	5	4,200	6⅜	6⅛	6¼	Mountain Producers	1,682,182	$10	30cSA	12-21-36	.60	5¾	4⅛	5½	4
23	17⅜	3,500	19⅛	18⅝	19	National Fuel Gas	3,810,183	N.P.	25cQ	1-15-37	1.00	20	11¾	18½	13⅛
15⅜	9¼	2,600	11⅞	10⅞	10⅞	National Transit	500,000	$12.50	35cSA	12-15-36	.75	10⅝	6¾	9½	7
6	2⅞	400	6	5⅜	6	New Bradford Oil	1,445,202	$5	10cSA	5-15-36	.10	3¼	2	2½	1¾
6⅜	1⅝	4,600	4½	4	4	New Mexico and Arizona	1,000,000	$1	1c	12-1-36	.01	2½	1	2¾	1
6¼	4¼	No sales	..	..	..	New York Transit	100,000	$5	15cSA	10-15-36	.35	4⅞	3	4¾	3
9¾	4⅞	600	7¾	7½	7¾	Northern Pipe Line	120,000	$10	35c	1-2-37	.40	8	5¼	7	4⅝
10¼	3¼	99,000	9¼	8¼	8¾	Pantapec Oil	1,608,700	N.P.	....	.....	....	4⅜	1¼	2⅝	⅞
19¼	4½	7,700	13¼	11	11⅞	Root Petroleum Co.	336,045	$1	25c	11-2-36	.50	5	1½	..	..
6½	1⅞	18,100	6½	5⅝	6⅜	Ryan Consolidated	296,931	N.P.	....	.....	....	2½	⅝	3⅜	⅞
47	32½	1,300	47½	46½	47½	South Penn Oil	1,200,000	$25	90c†	12-29-36	2.60	34½	21⅝	26½	17½
7⅞	3¼	200	5½	5⅜	5⅜	Southern Pipe Line	100,000	$10	10cSA	9-1-36	.25	5	3⅞	5½	3½
60	40	300	42	38	40	South West Penna. Pipe Lines	35,000	$50	$1Q	10-1-36	13.00	56	44¼	47	41
23¾	17⅛	3,600	20⅛	19⅞	20	Standard Oil of Kentucky	2,604,790	$10	50cQ†	12-15-36	1.35	24	18	18⅜	14⅝
14⅝	11	500	12	12	12	Standard Oil of Nebraska	188,403	$25	25c	12-19-36	.25	12	7¾	16⅞	8¼
40	21¾	1,900	36¾	35½	36	Standard Oil of Ohio	753,740	$25	$1.50†	12-21-36	2.00	23⅝	11½	28½	12¼
5	2⅝	30,700	4¾	4¼	4⅝	Sunray Oil	1,910,748	$1	5c	12-21-36	.10	2⅛	⅞	2	11/16
9¾	5⅜	3,800	7⅛	6⅝	7	Texon Oil & Land	336,028	$2	15cQ	12-28-36	.60	6⅞	5	11	4⅝

*Ex-dividend. †Includes extras. ‡Payable in Canadian funds. §New stock.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

NEW OR IMPROVED EQUIPMENT

Flowhead Packer Assembled Anywhere in Tubing String

A flowhead packer that can be completely assembled anywhere in the tubing string and through which it is not necessary to thread the cable while running into the well is one of the latest Kibele tools. This packer, put on the market by the Kibele Manufacturing Co., 5101 Maple Avenue, Dallas, Tex., has been perfected especially for use with electric-driven centrifugal pumps.

Metal bowls and rubber cups are split, the cups packing off the cable as well as casing and tubing. The cable sets in close to the tubing and does not rub the casing. Use of the packer is recommended in conjunction with the Kibele tubing-catcher in order to give maximum protection against falling tubing.

The flowhead of this packer delivers oil from the pump into the casing at a point above that at which the gas flow enters, thus increasing efficiency of the unit. Oil-flow and gas-flow passages are of the same area as the tubing and permit unrestricted outlet through the packer.

The device packs off by means of fluid pressure and employs no valves or other mechanical parts. Its mandrel offers no reduction in the internal area of the tubing. In the center of the flowhead is a bridge which can be broken if access to the bottom of the tubing is necessary. The packer is not anchored in the pipe, can be lowered or raised and pulled from the well easily.

Metal bowls and rubber cups which are not split or made to accommodate the cable are also furnished so that the packer can be used for straight gas-lift work. Many companies are using it first in this capacity before adapting the packer for combination gas and pump lift.

Bulletins, Booklets and Other Literature for the Trade

An attractive booklet, "Fairbanks-Morse Diesels," illustrates and describes present models in the complete line of Fairbanks-Morse diesel engines. An introduction traces the development and explains the operation and uses of diesels.

The booklet, "Drilling Control," which describes the place of the "Quintuplex" in modern drilling, has been revised and the third edition is being distributed. Copies may be obtained from the Martin-Decker Corp., Long Beach, Calif.

An illustrated catalog on the new 40-volt simplified electric arc-welding, showing the various jobs this new welding can handle, as well as a description of the line, specifications, etc., is being mailed on request by the Hobart Brothers Co., Box FR-173, Troy, Ohio.

"Here's your complete file of Lane-Wells gun-perforator applications," is the way the Lane-Wells Co., Los Angeles, Calif., prefaces an attractive illustrated booklet, available on request.

An eight-page catalog on stationary diesel engines has been prepared for distribution by the Western Engine Corp., 1000 Alhambra Avenue, Los Angeles, Calif.

Along with its usual interesting miscellany, the current issue of Between Calls, published by the Walter O'Bannon Co., Tulsa, tells about the new O'Bannon tubing-tong.

The current number of Welder's Stabilizer, published by the Lincoln Electric Co., Cleveland, Ohio, "for welders who take pride in their jobs," contains many practical suggestions for the oil field, refinery and machine shop.

A description of the new Brown diesel engine pyrometer is included in catalog No. 1,001, obtainable from the Brown Instrument Co., Wayne and Roberts Avenues, Philadelphia, Pa.

The Chain Belt Co., Milwaukee, Wis., announces publication of three bulletins describing Rex roller chain, Rex Griplock chain and Rex Z-metal chain.

The Youngstown Steel Products Co., representing the Youngstown Sheet & Tube Co., has opened a sales office in the Philtower Building, Tulsa.

Union-C air-compressors and pneumatic accessories are described and pictured in an eight-page bulletin prepared for distribution by the Union-C Machine Co., Union City, N. J.

Steam-Hose Is Built Especially to Withstand Refinery Use

The U. S. Royal asbestos cord steam-hose Official P-6031 has been announced by U. S. Rubber Products, Inc., 1790 Broadway, New York. Tests conducted in oil refineries, where the new hose will find its most important uses, indicate that the new steam-hose, with its nondeteriorating, non-char carcass, its adaption to superheated high-pressure steam service, its light weight and its flexibility will prove easy to handle and highly serviceable. The hose is constructed of steam- and heat-resisting rubber tube, four plies of high-strength asbestos cords wound spirally in alternating directions, and cords cushioned in a layer of rubber and wrapped in a heat-resisting rubber cover. It is made four-ply in five sizes, accommodating pressures ranging from 175 pounds to 300 pounds. Maximum lengths are 50 feet.

Album of Familiar Belts

An "Album of Familiar Belts," a folder containing 25 pictures taken in field and factory, has been released by United States Rubber Products, Inc. The pictures show installations of transmission belts in a variety of industries, as well as studies made by Margaret Bourke-White, chief photographer for Life, at the company's laboratory and factory in Passaic, N. J. The latter pictures afford a short but interesting tour of this modern transmission belt factory. Complete information pertinent to the installation or describing the process pictured is on the back of each picture.

The Century Electric Co., 1806 Pine Street, St. Louis, Mo., is sending on request an eight-page illustrated bulletin on Century single-phase brush-lifting motors.

MIDWEST EQUITABLE METER SALESMEN MEET IN TULSA

The second annual meeting of salesmen for the Midwest Equitable Meter Co.-Merco Nordstrom Valve Co., of Tulsa, recently held at the company's Tulsa plant, was attended by Col. W. F. Rockwell, of Pittsburgh, president of the parent companies, the Pittsburgh Equitable Meter Co. and Merco Nordstrom Valve Co., and the following salesmen: M. D. Gilbert, C. K. Madison, E. P. Martin and C. R. Parker, Houston; F. A. Arnesen and W. R. McLaughlin, Dallas; W. J. McArt, Oklahoma City; O. W. Barnett, Shreveport; R. R. Bush, J. H. Baker, J. L. Cottrell and F. N. Dillman, Tulsa.

These meetings, inaugurated last year by A. J. Kerr, district manager, provide opportunity for the salesmen to acquaint themselves with new developments in equipment manufactured by the company, including gas meters, orifice meters, gas regulators, water meters, oil and gasoline meters, integrators and lubricated plugvalves for use in every type of industry.

B. V. Fisher Is Now with OCT as Assistant Sales Manager

B. V. Fisher has joined the Oil Center Tool Co., Houston, Tex., as assistant sales manager, following four years in the field with Continental Supply Co. as special representative. He began work four

B. V. FISHER

years ago with Continental after seven years with Westcott Valve Co., during which he covered all United States fields as assistant sales manager. In his new position Mr. Fisher will be in charge of the OCT sales force, working under the direction of A. J. Penick, president and sales manager.

Bronze Valves of Larger Size Offered by Wheatley Bros.

A line of bronze valves to be carried in stock sizes 4 inches and up, is announced by Wheatley Bros., pump and valve manufacturers, Tulsa. Heretofore bronze valves in these sizes have been available to oil refineries and natural gasoline plants on special order only.

The Wheatley product is a high-pressure, horizontal-swing check-valve, exceptionally high in tensile strength and corrosion-resistance. Valves are screwed at one end and flanged at one end, or double-flanged, according to the requirements of users. An important feature is their high salvage value. Even after years of service users of these valves, according to the manufacturers, will find they will be able to recover a substantial portion of the initial cost.

Here and There With Men Who Manufacture Equipment

The Chicago Bridge & Iron Co. has moved its Tulsa office from the Thompson Building to 1404-1405 Hunt Building. D. H. Leach is manager. R. A. Williams has been transferred from Philadelphia to the Tulsa office as contracting engineer. He has been with the company 15 years.

The Worthington Co., Inc., with offices in Seattle, San Francisco, Los Angeles and El Paso, has been absorbed by its parent organization, Worthington Pump & Machinery Corp., Harrison, N. J. Worthington previously had absorbed the Carbondale Machine Corp., a subsidiary.

R. V. Stout has joined Lucey Products Corp. and will direct the company's production equipment business in Kansas, with headquarters in Great Bend. Mr. Stout formerly represented the Jon R. Long Co. of Fort Worth, and before that was with Mid-Continent Supply Co. in its production equipment division.

The Link-Belt Co., Chicago, has made Erwin A. Wendell district sales manager, with headquarters at 317 North Eleventh Street, St. Louis, Mo. He succeeds Howard L. Purdon, who assumes sales responsibilities in the Chicago territory.

The Foote Brothers Gear & Machine Corp., 5301 Southwestern Boulevard, Chicago, has appointed H. F. Edge & Co., 987 Cox Avenue, Atlanta, Ga., as district representative in Georgia, South Carolina, eastern North Carolina and northern Florida.

The Precision Scientific Co., 1730-54 North Springfield Avenue, Chicago, announces that it is now the sole manufacturer of Freas and Thelco constant-temperature laboratory equipment formerly built and sold by the Freas Thermo-Electric Co. of Irvington, N. J., and Chicago.

The Lincoln Electric Co., Cleveland, Ohio, has appointed William F. Fischer to the sales staff of its San Francisco office, 866 Folsom Street.

Alco Products, Inc., refinery construction subsidiary firm of American Locomotive Co., will open a branch office in the Esperson Building, Houston, Tex., February 1. John H. Erter, formerly connected with Alco's main office in New York for several years in an executive capacity, will be in charge of the Houston office. R. W. Coghill will be his assistant.

Wire-Line Guide Is Sparkproof and Helps to Spool Properly

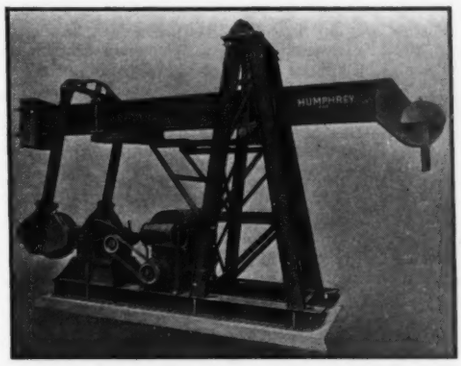
A new type of wire-line guide, fireproof, sparkproof and effective in proper spooling, has been developed by the Patterson-Ballagh Corp., Los Angeles. This guide has an elongated rubber bushing which eliminates hazardous sparks because the wire line does not develop a metallic contact but is cushioned by the rubber. The guide consists of a resilient member, compactly housed within a metal container which permits free travel of the wire line for proper positioning of the line on the spool. The resilient lining or bushing is made from the same wear-resisting rubber used in Patterson-Ballagh casing-protectors.

The liner is made in four 8-inch sections which can be turned when worn, thus prolonging the life of the bushing. Weight of the entire assembly is approximately 100 pounds. The overall length is 32 inches and housing 28 inches, allowing 2-inch overhang on each end. The rubber liner extends several inches above and below the housing. The top and bottom of the liner-blocks are tapered so that lubricant is dragged into the liner and evenly distributed. The entire weight hangs on a loop at the center of the liner, which properly positions the guide. Bridles are attached to the sides. By use of this guide, according to the manufacturers, the wire line is spooled evenly, preventing piling up on the spool.

Injury Hazards Are Decreased in Humphrey Pumping Unit

Hazards of personal injury are said to be greatly reduced by safety features of the Humphrey triple-balanced, long-stroke, straight-lift pumping unit announced by the Humphrey Steel Products Co., Burt Building, Dallas, Tex. Well servicing is simplified for one-man operation by disconnecting the compensating arms and pulling the walking-beam backward.

This machine is described as a sturdy, modern



and efficiently designed high-speed oil-well unit, with fewer bearings, all of which are oil-sealed and weatherproof. The crankpin bearings are of the self-aligning roller type. Humphrey steel counterbalance cranks with sliding crankpin housing eliminate the necessity of disconnecting pitmans for adjusting the stroke or servicing the well. Special patented pitman weights and adjustable cast weights on steel cranks insure correct balancing and place the load closer to the crankpin, relieving strain on the crankshaft. Additional counterweights can be used on the walking-beam if desired.

The unit is of arc-welded structural-steel construction; rigid, compact, and with a large factor of safety. It is manufactured in standard sizes, 36 inches to 66 inches and 46 inches to 96 inches straight stroke. (Longer strokes are made.)

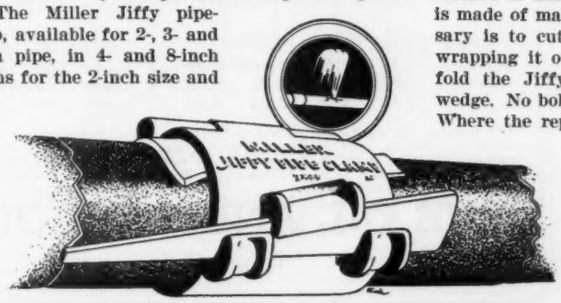
This swinging-beam unit provides straight-lift long-stroke, which increases production and requires less prime mover. Foote helical pumping reducers, double or single reduction, can be reversed on the variable-height base to give clockwise or anticlockwise rotation.

Forms Central Sales Division

The Caterpillar Tractor Co. has appointed Louis B. Neumiller as sales manager of its newly created central sales division. E. W. Jackson has been promoted to general service manager, the position formerly held by Mr. Neumiller. The central sales division was formed by the dividing of the United States into three sales areas instead of the former two. It includes roughly the territory lying between the Rocky Mountains and the Mississippi River. H. M. Hale is sales manager of the eastern division, H. H. Chambers of the western, and F. G. Nunnelly of Canada. All have their headquarters in Peoria, Ill., excepting Mr. Chambers, whose office is in San Leandro, Calif.

JIFFY PIPE-CLAMP REPAIRS PIPE LEAKS QUICKLY

Freezing temperatures mean burst pipes which can cause costly tieups unless repaired quickly. The Miller Jiffy pipe-clamp, available for 2-, 3- and 4-inch pipe, in 4- and 8-inch lengths for the 2-inch size and 6-inch for the 4- and 8-inch sizes, offers a simple method of making a permanent repair. The device is made of malleable iron hinged. All that is necessary is to cut a piece of old belt or inner tube, wrapping it over the break as a gasket and then fold the Jiffy clamp over it, driving home the wedge. No bolts are necessary; not even a wrench. Where the repair is only temporary, simply driving out the wedge instantly removes the clamp for use on another break. The Jiffy clamp is manufactured by the Miller Sand Pump Co. of Oklahoma City, Okla., maker of the Miller sand pump.



Oil Man's Calendar

February, 1937

8-10—Louisville, Ky., Kentucky Petroleum Marketers Association, Brown Hotel.

15-16—Wichita, Kans., Kansas Oil Men's Association, annual exposition and convention.

15-19—New York, American Institute of Mining and Metallurgical Engineers.

17-18—Peoria, Ill., Illinois Petroleum Marketers Association, annual convention and marketing exposition, Hotel Pere Marquette.

23-25—Milwaukee, Annual Convention, Wisconsin Petroleum Association.

23-25—Columbus, Ohio, Ohio Petroleum Marketers Association, annual convention and Trade Exposition, Hotel Deshler-Wallick.

23-25—Milwaukee, Wis., Wisconsin Petroleum Association annual convention, Plankinton Hotel.

Memphis, Tenn., Southwest Sales Conference, Natural Gas Department.

24-25—Des Moines, Iowa, Iowa Petroleum Association.

24-26—New York, Association of Highway Officials of North Atlantic States, thirteenth annual convention, Hotel Pennsylvania.

25-26—Tulsa, Mid-Continent district, A.P.I. Division of Production, Mayo Hotel.

March

1-5—Chicago, American Society for Testing Materials, regional meeting and committee week, Palmer House.

10-11—Indianapolis, Indiana Independent Petroleum Association Spring Convention and Refiners' and Suppliers' Exhibit, Hotel Severin.

12—Oklahoma City, Okla., Interstate Oil Compact Commission meeting.

15-19—Philadelphia, Pa., National Oil Burner & Air Conditioning exposition and convention, Convention Hall, Commercial Museum.

17-19—Los Angeles, Calif., A.A.P.G. annual meeting.

23—New York, Oil Trades Association of New York.

April

7-9—Birmingham, Ala., American Institute of Mining and Metallurgical Engineers, Open Hearth Conference.

8-10—Shreveport, La., Petroleum Industry Electrical Assn.

13—Los Angeles, Calif., American Petroleum Institute, Division of Production, Pacific Coast district, Biltmore Hotel.

15-16—Cleveland, Ohio, 34th semiannual meeting National Petroleum Association, Cleveland Hotel.

26-28—Hot Springs, Ark., Western Petroleum Refiners Association, annual meeting, Arlington Hotel.

28-30—Tulsa, Natural Gasoline Association of America, annual meeting, Hotel Tulsa.

May

6-7—Columbus, Ohio, American Petroleum Institute, Division of Production, Eastern district, Deshler-Wallick Hotel.

10—Kansas City, Mo., Spring meeting Natural Gas Department, American Gas Association.

19-21—Tulsa, Natural Gasoline Association of America, annual meeting, Hotel Tulsa.

May—June

Late May/early June—Paris, France, Second World Petroleum Congress, during International Exposition.

June

1-3—Colorado Springs, Colo., American Petroleum Institute, mid-year meeting, Broadmoor Hotel.

7—Kansas City, Mo., Oil Field, Gas Well-Refinery Workers of America.

10-12—Pennsylvania Grade Crude Oil Association, annual meeting, on Great Lakes S.S. "Seeandbee," sailing from Buffalo, N. Y.

11—Santa Fe, N. M., Interstate Oil Compact Commission meeting.

June—July

28-July 2—New York, American Society for Testing Materials, fortieth annual meeting, Waldorf-Astoria Hotel, together with fourth A.S.T.M. exhibit of testing apparatus and related equipment.

October

11-16—Houston, Tex., Oil-World Exposition.

CLASSIFIED ADVERTISING

Patent Attorneys

JACK A. SCHLEY
PATENT LAWYER

Patents Obtained—infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas. 2014 Second Nat'l. Bank Bldg., Houston. 707 Insurance Building, San Antonio. 433 Munsey Building, Washington, D. C. Address any of these offices.

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"Evidence of Conception."
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Washington, D. C.

Help Wanted

REFINERY PROCESS ENGINEER. Major oil company has an opening in its Process Design Department for chemical or mechanical engineer with at least 5 to 6 years' experience in the design and operation of distillation, cracking and lubricating oil processing units. Work will involve design, operation and economic studies. Applicant should be well versed in thermodynamics, physics and mathematics and possess engineering ingenuity. Salary after qualifications. Give details of education, experience, recommendations, salary expected and photo. Reply treated confidentially. Address Box H-620, The Oil and Gas Journal, Tulsa, Okla.

WANTED—Civil Engineer for surveying in Colombia, South America. Must be capable of calculating longitude and latitude by astronomical observation and also speak Spanish fluently. Give detailed information as to age, education, experience and salary expected. Good opportunity. Address Box H-632, The Oil and Gas Journal, Tulsa, Oklahoma.

For Sale—Maps

Oil map of Mid-Continent. 50c. Texas-Oklahoma county maps $1-$1.50. Oil City Map Co., Fort Worth, Texas.

STATE OF TEXAS
1937 REVISED EDITION MAP
New and Enlarged to include parts of New Mexico, Oklahoma, Arkansas and Louisiana. Shows oil and gas fields, etc. Price $1.00. Write for folder on county ownership and oilfield maps.
ZINGERY OIL MAP COMPANY
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Royalties—Production

PRODUCING and prospective oil and gas royalties offered to dealers. F. A. OGREN, Box 352, Hoke Building, Hutchinson, Kansas.

WILL Sell Acres or Royalties within Major lease boundaries, Texas Gulf Coast. Other lands with potential oil values. F. J. Winter, 379 Clarkson, Denver, Colorado.

HIGH GRADE producing oil and gas royalties offered to dealers. Billie Smallwood. P. O. Box 2261, Tulsa, Oklahoma.

FOR SALE—Deeded oil royalties 80 acres now producing in famous Winkler Co., Texas. E. S. Coy, 854 Payne Ave., St. Paul, Minnesota.

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Sell in the most active area in the United States — The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Securities and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

ROYALTIES PURCHASING TRUST LTD., Moorgate Hall, Moorgate, London, E. C. 2., England, are buyers of producing oil royalties.

HUGH McCLELLAN
Union Natl. Bank Bldg., Wichita, Kans.
Attractive Kansas Royalties for Dealers

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico.
Roy G. Barton, Clovis, New Mexico.

PRODUCING ROYALTIES WANTED
We are in the market for good producing royalties. Submit complete information and map of what you have to offer in first letter.
SOUTHLAND LEASE & ROYALTY CORPORATION
311 Milam Bldg., San Antonio, Texas

ROYALTY, Oil Property and Land Investors. If you have money that is not working, write me for my 1937 plans. Ask for no list.
E. B. REEVES
Box 13, Alanreed, Gray Co., Texas.

Commerce Attorney

Pipe line rates, charges, rules and regulations.
JAMES J. SHAW, Commerce Attorney
Suite 1605 Sterling Bldg., Houston, Texas

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1 Inch	*1 time*	*$5.00*	
1 Inch	*13 times*	*4.50*	*per inch*
1 Inch	*26 times*	*4.00*	*per inch*
1 Inch	*52 times*	*3.50*	*per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

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	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*	*7 Lines*	*$2.45*	*$4.20*	*$5.95*	*$7.70*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
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Tulsa, Oklahoma

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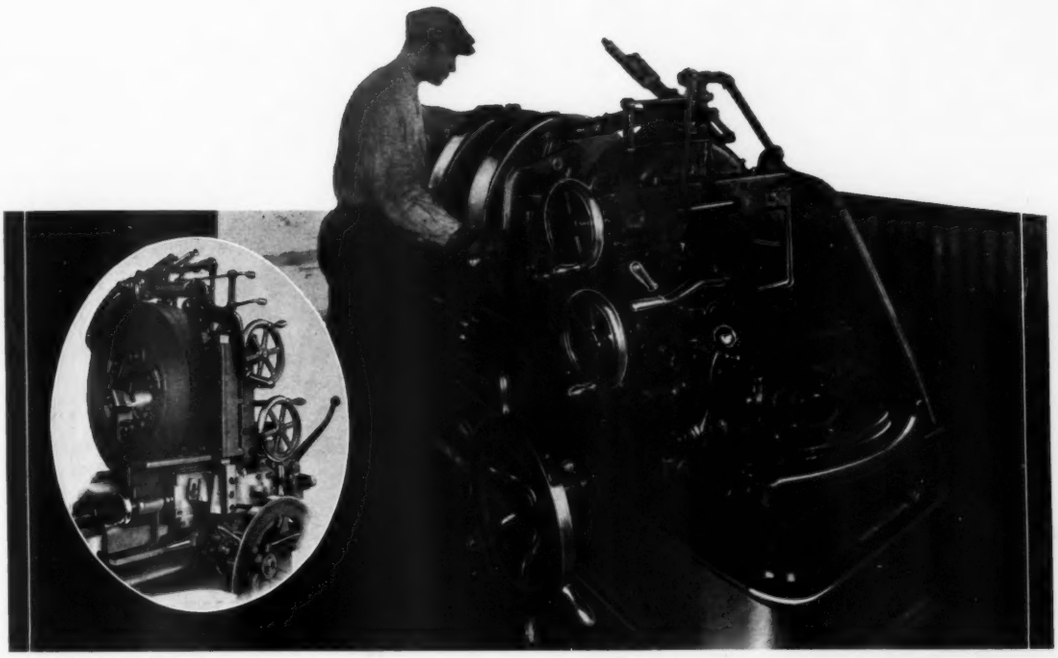

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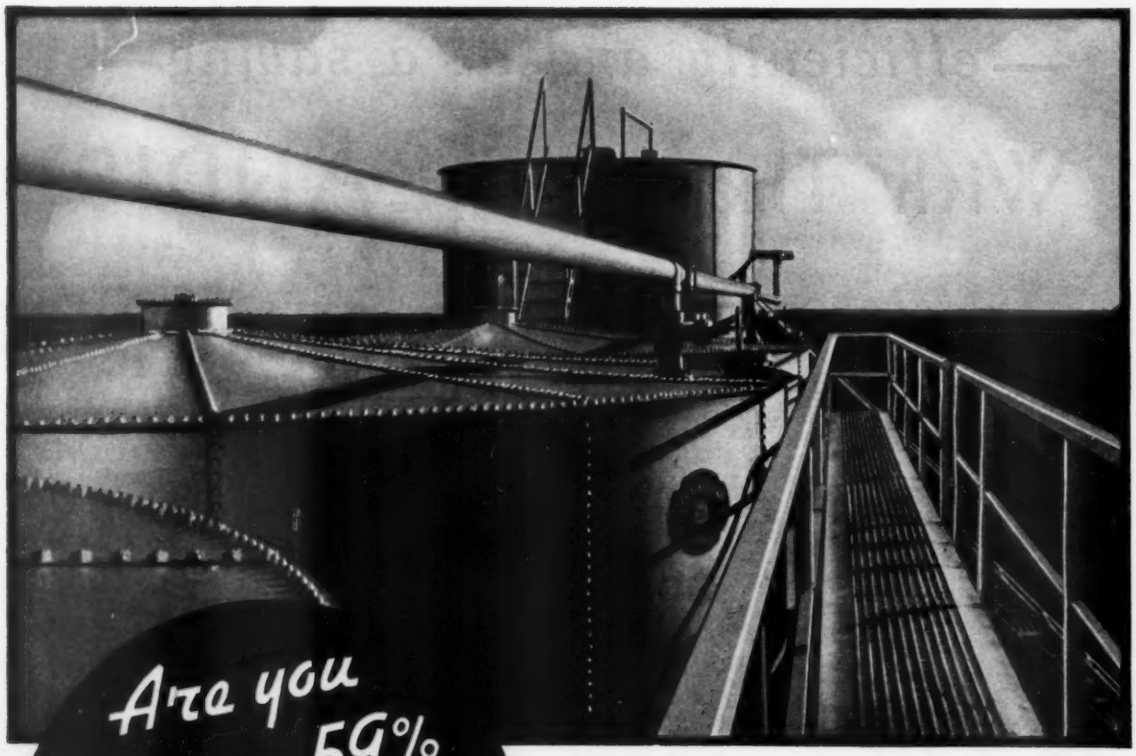

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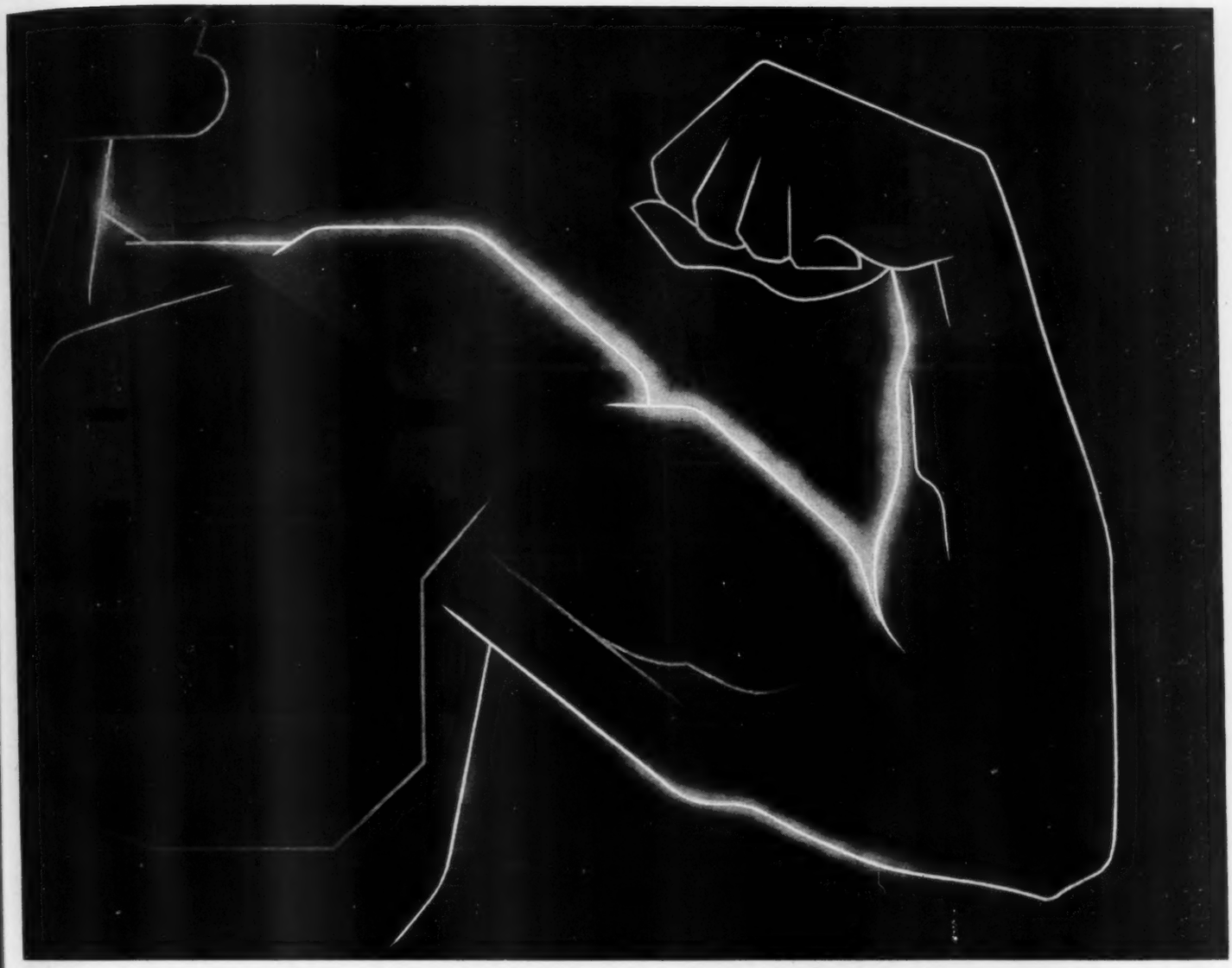

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All of the many significant Westcott refinements in construction have a single purpose . . . a PRACTICAL meter that will HOLD its fine in-built sensitiveness and accuracy—no matter how rigorous the conditions of service, whether for Indicating, Recording or Integrating instruments. ● Accuracy must be BUILT INTO a meter. In the Westcott orifice meter, it is embodied in a score of outstanding features: The precision machining of the differential gage body chambers . . . the low angle of travel of the float . . . the small angular travel of the static pressure tube . . . only one movable part between the mercury surface and the chart record . . . ● Printed or personal engineering information is available on request. Specifications on the popular new Round Case Indicating Flowmeter also may interest you.

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